

The Mining And Metallurgical Journal

VOL. XXI. NO. 4

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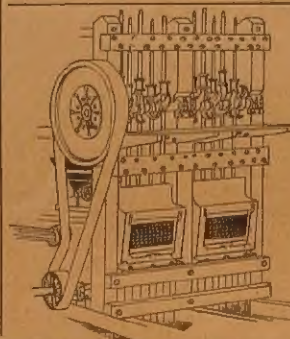
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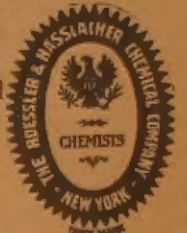
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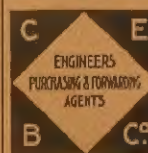
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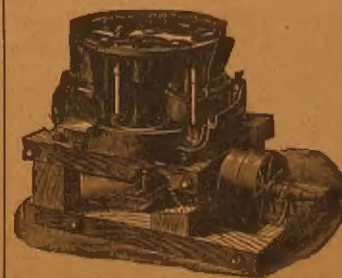
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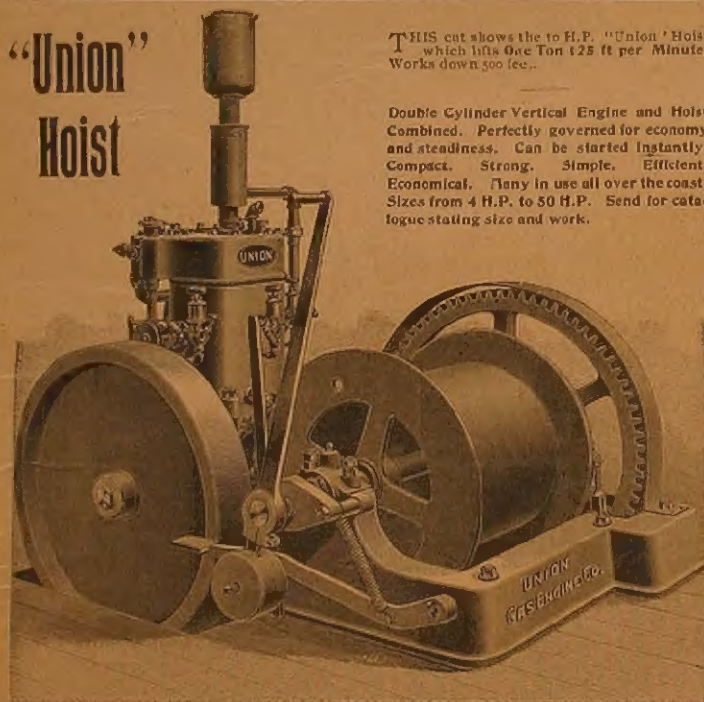
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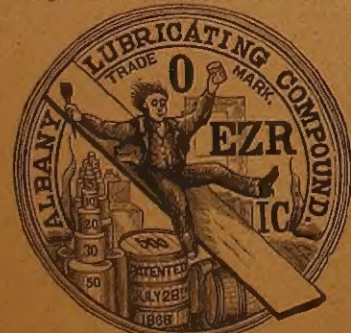
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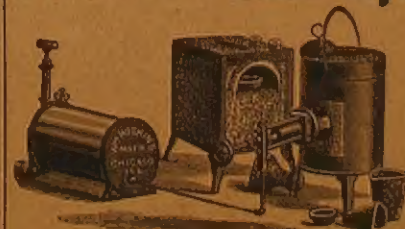
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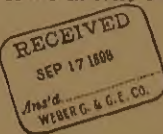
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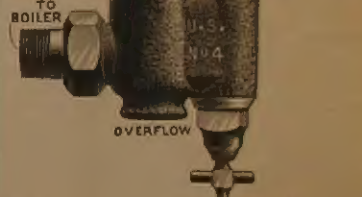
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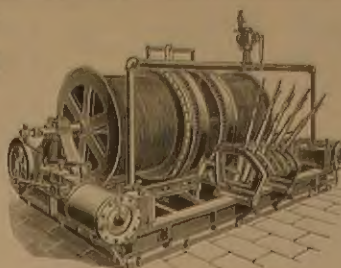
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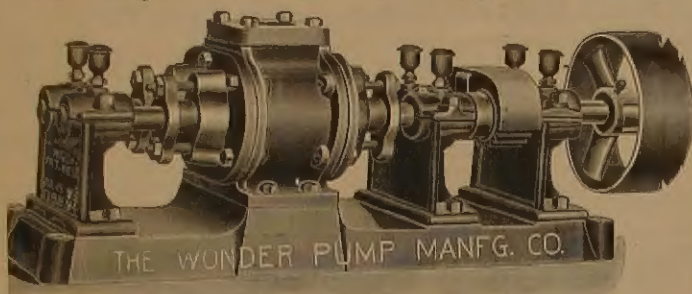
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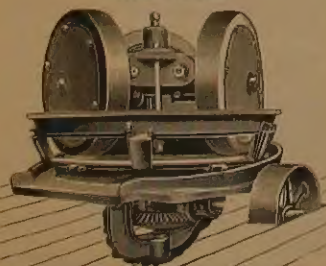
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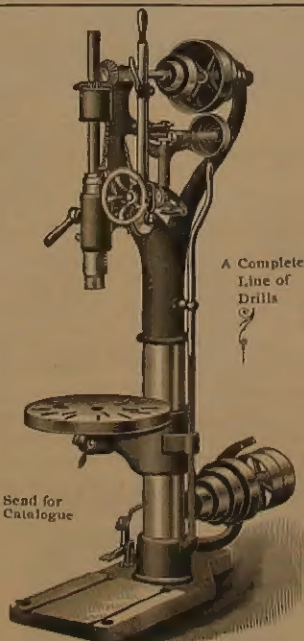
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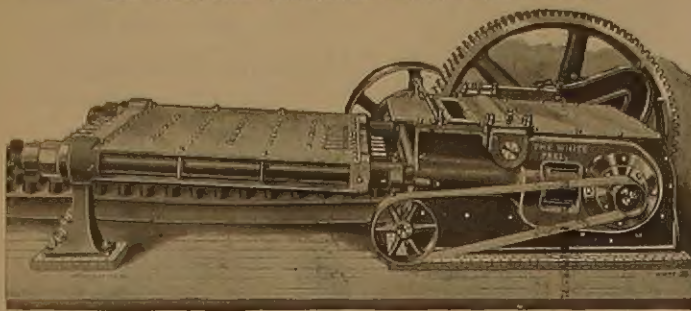
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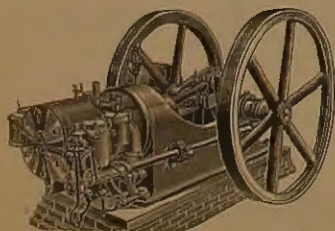
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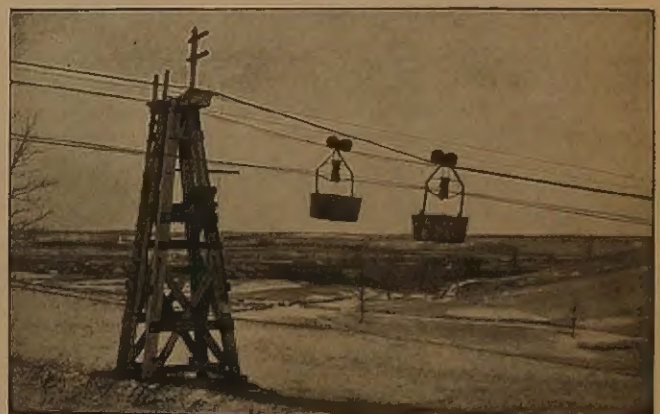
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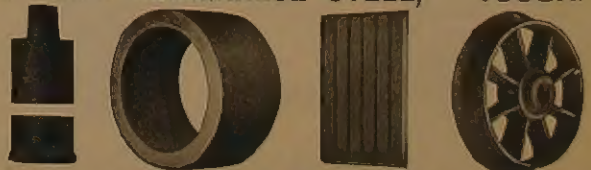
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THE SOUTHERN CALIFORNIA BRANCH.

The Southern California Branch of the State Miners' Association is now an active organization, having been formed at a meeting held in the Los Angeles Chamber of Commerce on the 29th ult., as has been reported on another page. It was not to be expected that all who were desirous of becoming members of the Association could attend that meeting, for private or business reasons prevented many, but to all who desire to become members the invitation is extended to kindly send their name and address to the local Secretary, O. S. Breese of the Southern California Branch of the C. M. A. at Los Angeles, Cal., together with the entrance fee of two dollars, which entitles them to membership and privileges for one year. For many reasons a large increase of members is desirable, both as a benefit to the work carried on by the Association, and as a matter of personal interest and profit to the members individually. As the approaching meeting of the American Institute of Mining Engineers is to be held in San Francisco in October next, a large representative membership from all sections of the State is desirable, and as many of the Southern California members may find it convenient to be present on that occasion and at the meetings of the California State Miners' Association, which is to be held on the following days, these two important events have special interest to all mining men to have their district well represented. Identification with the Association at the present time has special personal interest to all who are engaged in mining or connected with the industry in its numerous branches.

THE VERY LATEST NEW DISCOVERY.

It is simply amusing how easily an excitement or stampede is made to some point of supposed rich discovery in a reported new district. Such an event is reported in the daily press two weeks ago, in the discovery

of rich ore in the district south from Kramer, San Bernardino County, Cal., where it is reported ore has been found which is said to be equal in value to that now being mined at the Yellow Aster Mine, at Randsburg, Cal., some 40 miles or so to the north. The fact is that mining has been prosecuted in the district south of Kramer for a number of years, but on account of a short supply of water, and also of sufficiently rich ore, prospecting only has marked the development of that section. It is earnestly to be hoped that the reported find will prove a rich reality for the owners and the district. Of course, a rush of prospectors and others has been made to the new locality, and, like all such excitements, many will be doomed to disappointment. The only short cut to the best locality in which to find a bonanza is to go to work and prospect in an intelligent and industrious manner, and, by locating promising claims and developing them, you thereby get in on the ground floor of the enterprise and district, and the southwest is full of such chances as yet undiscovered. To rush to new district where rich finds are reported is to go too late in the day, as the chances are that the good ground is already located before you arrive. Such has been the history of mineral discovery in recent years, as the early days of California and Australia, with large areas to explore, are not now in the market. The new discoveries of this period are narrowed down to the confines of a few miles of territory included in a mining district.

HOISTING WORKS AT A MINE SHAFT.

The too common practice of placing the hoisting works of a mine in the same building or directly adjoining the shaft house is a custom which may be economical, but is not advisable on account of the danger from fire. That is, the gallows frame at a mine shaft or the head gear around the collar of a shaft should be a separate and distinct building from the engine house or hoisting room. A mine shaft with a nest of buildings immediately over it is a death trap in case of a fire or explosion, for the presence of which there is no excuse except ignorance or extreme carelessness. It very seldom happens that the ground surrounding a mine shaft is so situated that it is only possible to make the shaft house and engine house combined in one and the same building. In rare instances there are difficult, steep hillside localities where a combined building might be made an excuse for economy and convenience in choosing such a position for both, but due regard for safety from fire and good pure air for ventilation are objects more worthy of consideration than any economy such a wrong custom can warrant. In small mines where there is only one shaft or means of exit, the custom is most common, for when the mine becomes larger the error is changed by using separate buildings. The most common causes of fire have been, thawing frozen powder in the engine room or on top of the boiler, contact of the chimney stack and roof, or not sufficient length to same causing a spark to set the roof on fire, explosion of the boiler and fire starting in the woodpile where wood is used for fuel, have all made such an arrangement of buildings a death trap which can be avoided. Again when the order is reversed and the fire starts from underground in a mine where much timber is required to be used the buildings over the shaft when such an accident oc-

curs are sure to be lost also. The mistake is much more common in metalliferous mines than in coal mines, where underground fires are much more common.

THE RIGHT TO USE WATER FOR MINING.

The first instance of a recent complaint in Southern California, of a miner improperly using water for hydraulic mining purposes, is reported in the case of Charles Hagan, who has been in charge of hydraulic mining operations in the upper San Gabriel Canyon, Los Angeles County, Cal. As a consequence of his disregard of an injunction against what the court considered the improper use of the San Gabriel River water, Judge Allen, of department six of the Superior Court, imposed a fine of \$250, for disregarding the injunction, and as damages of the right to said waters which were claimed to belong to the citrus lands in and adjacent to Covina, Duarte and Azusa.

The industry of hydraulic mining in Southern California is exceedingly small, and intermittent with the melting of snow on the mountains in spring, the water in some small mountain streams is put to that use.

During past years, the amount of gold taken from San Gabriel River in that way has amounted to over \$7,000,000, which is a handsome sum to have added to the wealth of any community, and far exceeds the value in the part which the citrus interests of Covina, Duarte and Azusa have added to the state's store of riches.

The use of such water for hydraulic mining purposes is not against the interest of the parties who use it for irrigation afterwards, as the rich slimes it may contain act as a fertilizer on the land so irrigated. The storing up of water for hydraulic mining purposes, at the time when the land required it would act as a hardship on the land owners. As the scene of the hydraulic mining operations is located many miles above the point where the waters are taken for irrigation use, there is no cause of trouble arising from the debris due to the use of such water for hydraulic mining, but is in consequence of the past two dry winters, there has been a clash of interests as regards the use of the water when both parties claimed the right to the short supply on hand at this season.

THE TRUST QUESTION.

Not even the subject of expansion, imperialism, or the money question is attracting so much attention, or absorbing so much public thought as the trust question. The trusts control nearly or quite seventy-five per cent of the productions of the country, exclusive of agriculture, and as a logical sequence, they control an equal percentage of their distribution. In the last twelve months trust stocks have increased more than one billion dollars.

Their power has actually become alarming, and their purposes, when executed, as they will be unless interfered with by the government, will be crushing to individual enterprise and oppressive upon the great body of the people. They have it in their power to control prices of raw materials, the wages of laborers and the prices of commodities prepared for consumption. Many important lines of industry are already in their hands, and it may be apprehended that when a little farther along, there will be a combination of trusts

and all important industries will be under the domination of a single monopolistic autocrat. Even agriculture would not escape their grasp were it practicable to seize hold of it.

And for what purpose are trusts formed? For none other than to render capital dominant over labor, that profits on money may be enhanced. It will not be unnoticed that they seek to make profit out of raw material producers, laborers and consumers. The plea is to cheapen cost to consumers by the introduction of greater economies.

The defense of trusts is that they are essential on account of changes in economic conditions. There has been a change in the larger employment of machinery in production, which makes it necessary to construct large plants, and the association of laborers. It is doubtless true that through scattered private enterprises it would be impossible to supply the demands for consumption on account of growth of population, increase of wants wrought by civilization and superinduced by accretion of wealth. But the plants and associations of labor can produce as much operated separately as in combination.

There has been and is a conflict between labor and capital, and wages have been forced up, not by strikes, but through labor organization. The demand of the working people is for a just share of the wealth produced by their aid, and of that which nature has created. The main object of the trusts is to place capital in a situation where it will have the strategic position as against labor. By these tactics the trusts expect to be able to dictate the wages of labor, the prices of raw materials, and of the commodities consumed by the masses. They are striving for advantages at both ends.

Public sentiment is fast becoming enlightened to the evils which menace the country from trusts, and the great question now being considered is one of remedy. Denunciation merely will do no good, the trusts do not care for that. As the boy said, "scolding doesn't hurt any." What is needed is some positive and effective action on the part of government. To that the best thought of the American people should be given. We have confidence that the intelligent American people will ere long discover an appropriate and sufficient remedy.

The question of trusts has also entered into politics, and will become more conspicuous as time advances. The trusts have no politics beyond promoting their own interests, and they will unitedly support the party least inimical to them. In the meantime, as did the slave power, the trusts will defy and goad the people in the confidence in their strength. They will for the thousandth time illustrate the truth of the old Roman saying that "whom the gods would destroy they first make mad."

The trusts are really doing more to advance the cause of socialism than all the socialist agitators. They strike down competition for their own gain, and thereby prepare the way for putting public affairs under direct government control.

NOTICE TO MINERS.

I desire to thank the miners of Southern California for the courtesy shown me in their selection of me as Secretary of the Southern California Branch of the California Miners' Association, but my connection with the most prominent mining publication in the west, THE MINING AND METALLURGICAL JOURNAL, makes it impossible for me to devote the

time and consideration the duties of secretary of such an organization demand, so I therefore respectfully decline to hold the office permanently.

As I have the best interests of the Association at heart, I will, however, remain temporary secretary until such a time when the Executive committee can appoint some one to take the secretary's office.

In the meantime, those wishing to become members of the organization will send their names, addresses and two dollars (\$2.00) for initiation fee and one year's dues to the undersigned. It is desired that all interested in uniform mining laws, the conservation of water, the preservation of forests and other mining matters pertaining to legislation should become members of the society.

O. S. BRESE, Sec'y.

SOUTHERN CALIFORNIA MINERS' ASSOCIATION.

The convention of miners of Southern California was held in the Assembly Room of the Chamber of Commerce, in Los Angeles, Cal., Saturday evening, April 29th.

Secretary E. H. Benjamin, of the California Miners' Association, opened the meeting with a few remarks, and expressed his regret at not being able to have President Jacob Neff with him, he being detained at home on account of illness.

Vice-president W. C. Ralston telegraphed his proxy to the Hon Stephen M. White to act as vice-president, so he was accordingly called to the chair.

O. S. Brese was elected temporary secretary, and, on motion of J. J. Mellus, a committee of five was appointed to draw up resolutions of organization. J. J. Mellus was appointed chairman. Senator John F. Davis, Walter S. Maxwell, George N. Nolan, and F. W. Braun constituted the committee.

Attorney-General Tirey L. Ford then addressed the body. He gave a short review of the past history of the California Miners' Association, the causes of the better feeling between the farmer and miner in Nevada and Placer Counties in the latter days of hydraulic mining in those counties. He said:

"Through the influence and work of the Association, and those connected with the organization, Congress has passed the Caminetti Act, authorized the Debris Commission, through which 300 and more mines have been rehabilitated, and, later, appropriated \$250,000, for the erection of restraining dams.

"Now, for some reason, the state organization has no representation from Southern California, and I hope one will be organized to affiliate with the parent body, in order that representation throughout the state might be uniform. The State Association instituted by Charles G. Yale, in Placer and Nevada Counties in 1892, now has branch organizations in every county of the state north of the Tehachapi. It recognizes no private or commercial interests, but is a miners' organization for the benefit and protection of miners alone. One of the greatest difficulties in influencing national legislation is the absence of any mining department in Washington; the State Association was moving in that matter, and already had the promise of a bureau of mines in the Interior Department when war with Spain was declared.

In speaking of the need of a Department of Mines and Mining, with the Secretary a Cabinet officer, he further said:

"Fifty years ago, when the Interior Department was organized, the annual mineral product of the United States was comparatively speaking nothing; now it is nearly, if not quite, \$1,000,000,000, and yet this great industry is not accorded a department in the national capital." When the State Association was organized in 1892, the annual mineral product of California was about \$11,000,000; now it is nearly \$27,000,000; there has been a great awakening, and the Association had brought the attention of the capital of the world to the mines of California.

"Southern California, with its rapidly increasing

mineral production should join heartily and go with us hand in hand in this work."

"To the miners we owe our statehood, to the miners we owe our avoidance of the panic of '93. The war with Spain was unfortunate, but it is California's opportunity, as she sits at the nation's gateway. Let us all pull together and all industries will advance as one."

Mr. White then introduced Charles G. Yale, statistician of the State Mining Bureau, "as a miner who knows what he is talking about."

Mr. Yale referred to sections of the mineral statistics given in another column, and further stated:

"An enumeration has been made by the United States mint to ascertain the number of men engaged in gold, silver, lead and copper mining in 1898. It shows that there are 19,823 miners thus employed, and from the Southern California Counties of Santa Barbara, Ventura, Los Angeles, Orange, San Diego, Riverside and San Bernardino, it was found there were 1365 men in this kind of mining, leaving 18,458 in other counties. If Kern is counted as a southern county, these southern counties have 2,427 men engaged in mining gold, silver, copper and lead, as against 17,396 in other counties. Men working in petroleum, clay, borax or other substances, except those named, are not counted in this enumeration in any of the counties. The mineral production of the southern counties, including Kern, are, total, \$6,347,457; north, \$22,071,196; southern counties, including Kern, gold, \$2,275,763; north, \$12,820,715; southern counties, including Kern, men, 2,427; north, 17,369."

A. H. Ricketts, chairman of the Mineral Lands Committee of the California Miners' Association was then introduced to the assemblage, and in speaking of the methods and plans of operation of the State Society said:

"Let me now inform you of the method by which the work of the California Miners' Association is conducted: In each county there may, and in many cases does, exist a separate and distinct organization, governed by its own constitution and by-laws, and having its own officers, etc. Said county organization may meet at any time and at all times during the year to suit its convenience, and if it has any grievance it suggests the remedy. Upon coming to the State convention each county organization may present their statements, whatever they may be, and ask the entire body of miners of the State to assist them in obtaining the needed legislative or other relief. The State organization holds its session in San Francisco in October of each year. Such matter as may be presented by any county organization is then considered by the convention, and if found to be for the general good of the mining industry is recommended by resolution, or otherwise, by the convention, and is thereafter confided to the proper committee, subject to appropriate action by the Executive Committee of the Association, to which is intrusted the carrying out of the wishes of the convention. This Executive Committee is composed of representatives from the different county associations. All other committees of the Association are subordinate to the Executive Committee; for instance, the Legislative Committee, which has charge of the matters pending before Congress and the Legislature of this State. The Mineral Land Committee has charge of all matters relating to the preservation of the mineral lands. The question of the mineral lands is, whether the railroad companies shall acquire title to the mineral lands within their grants. It is the contention of the miners that the government never intended that the railroad companies should acquire the mineral lands within their grants, but yet instances are too numerous to mention in which such lands have been patented to the railroad companies by the Land Department of the United States. This Mineral Land Committee gives its entire attention to the best method by which these mineral lands, and mineral lands only, shall be restored to the public domain or remain therein. With any other question affecting the railroad lands, neither it nor the parent association has any concern.

"In order to accomplish its end this committee must prepare the proper arguments and furnish data to the officers of the government and through Congress to the government itself, showing the necessity for restricting the railroad companies in their efforts to illegally absorb such lands. This requires a vast amount of legal work, of correspondence and of personal visits of attorneys to Washington during the sessions of Congress, in order to fully present the rights of the miners in the matter.

In the case of this particular committee in order to effectuate the purpose for which it was created, it

has been necessary to file protests against the action of the railroad companies in seeking to obtain patents to lands containing mineral and lying within their grants and which, under the unjust rules of the Land Department, would be patented to them as a matter of course. All this has involved a great deal of work and expense, although we have been fortunate in having in that committee attorneys who have willingly given their time, advice and professional services to the miners' cause free of any expense. In fact, none of the several attorneys who have gone to Washington from time to time upon this and other matters, have ever asked or received any fees whatever for their services.

"The Legislative Committee is another important one. Matters to be brought to the attention of either the Congress or State Legislature are in its charge. Upon it devolves the duty of preparing the necessary bills, obtaining sponsors for their introduction into the proper legislative body, and, also, in soliciting the aid of Congressmen and legislators friendly to the miners' interests to secure the passing of such acts as the Executive committee may indorse.

"In charge of another special committee is a most important measure. It is the one which provides for a Secretary of Mines and Mining, in order to give the miners the same standing that agriculture now has in the President's Cabinet.

"Until the formation of this Association there was no mouthpiece for the mining industry except through the efforts of individuals, and the grievances of this industry were never brought to public attention. These individual efforts uniformly failed through lack of the influence now maintained by a large body of men engaged in the same business and united in their efforts.

"The only reason, possibly, why more prominence has not been given to the industries which are exclusively confined to the southern part of this State, lies in the fact that the Association has not been so well informed concerning them, because of the lack of representatives in the convention from those sections in which those particular mineral substances are found. It is for this reason, among others, that we wish representation from counties in this part of the State."

Ex-Senator White in his remarks urged affiliation with the State Association and pleaded with the body not by intimation or inference to consider division of the State, even of the mining interests. He was a native of California, proud of her potentiality, "the mining interests of the north should be identified with those of the south, as the miners of the north are the strongest friends of the miners of the south."

The Committee on Organization at this juncture reported as follows:

"We, your committee, respectfully recommend that the organization be constituted and known as the Southern California Branch of the California Miners' Association; that its headquarters be located in Los Angeles, and that the officers be a President, Vice-President, Treasurer and Secretary, and an Executive Committee to consist of three members at large and one member from each county in Southern California be appointed by the President; that the temporary officers be made permanent for the first year, and that the Vice-President and Treasurer be selected after organization is effected; that the membership fee be \$1 for initiation and the dues \$1 per year; that all persons friendly to the mining interests are eligible to become members of this branch organization."

A. Richardson introduced a resolution in the nature of a substitute, calling for the organization of a "Miners' Association of Southern California," whose purpose it should be to look after mining interests in this section and calling a convention for the purposes of such organization on July 12.

On motion of Mr. James the substitute was tabled by a large majority. After the resolution had been tabled several parties demanded recognition, but the chair ruled the motion not debatable.

The report of the committee was then taken up and debated at length by numerous parties and was adopted unanimously.

Capt. G. G. Mullins was elected Vice-President, and H. J. Fleishman Treasurer. On motion of Col. E. J. Ensign, a vote of thanks was tendered the Chamber of Commerce.

H. Z. Osborne moved a vote of thanks for

the presence of Atty.-Gen. Tiley L. Ford, A. H. Ricketts, E. H. Benjamin, Charles G. Yale and Senator Davis, and they were given with a will.

Mr. Chas. G. Yale said that as the State Mining Bureau had a large collection of duplicate specimens, State Mineralogist A. S. Copper had requested him to place a cabinet at the disposal of the Southern California Branch.

Some sixty-five names were signed to the roll of the meeting, while numerous others left before the rolls reached them.

Utah Mining Stocks.

Business in the Salt Lake City, Utah, mining share market last week reflected a greater volume than was the case the week before, but the market as a general rule was in the hands of professional traders, and the quotations made reflected this condition. With a few exceptions, stocks close in firmer tone, and there is a much better feeling manifested among traders. It should not be many days now before all the roads are in fit condition for ore hauling and shipments to the smelters should be materially increased. A general resumption of operations and movement of ores would doubtless be followed by a much improved tone in the stock market. The advance in silver is also extremely encouraging.

On nice dealings. Ajax held its figures of last week and was in good demand. The properties are looking very well and some high grade copper-silver-gold ore is coming from them. Under the new management, operations will be systematic, economical and business-like. Anchor did nothing. On this market, Alice did little or nothing, but some business in the stock was done on the outside. The properties are operating regularly. Only limited business was done in the Bullion-Beck, but the stock remained firm. The mill is doing good work and the properties are making a splendid shipping record. Buckeye was stationary. Maintaining its figures of last week. Centennial Eureka hugged \$51.00 closely, with offerings one dollar higher. A very fine showing is being made at the properties, which are showing some immense quantities of high grade ore. It is anticipated that operations at the Chloride Point mill will be resumed within the next ten days, all preparations to that end being now under way. Meanwhile, the stock remains dull, although new life should be put into it by the starting of the mill.

Daly was stronger and in much better demand. The talk of an early resumption of operations at the Ontario has had a sympathetic effect upon the stock. Offerings were comparatively limited. While doing some business, Daly-West remained about unchanged. Heavy shipments of ore from the mines are expected to commence at once. Great quantities of shipping ore are broken in the mines and stored in the bins. On profit taking, Dalton & Lark lost some little strength. The holders of the option are making preparations to commence operations at once. Dalton was fractionally stronger. Dexter was in heavy demand and sold materially higher. Good reports came from the mines and full operations are to commence at the mill at once. Again did Daisy fluctuate considerably, ranging from 27½ cents to 34 cents. The stock closes stronger and with indications of a further strengthening. Taken as a whole, the results of the recent experting were satisfactory. Messrs. Dern, Airis, and associates have some thirty-five days yet on their option

on 100,000 shares at 40 cents per share. The outcome of the deal is still problematic, however. Heavy buying for conservative people has followed the making of these low figures, the feeling being that there will sooner or later come a marked reaction. Eagle & Blue-Bell again sold at \$1.67½ @ \$1.70, although the business done in the stock was comparatively limited. Work at the properties continues as usual.

Latest Mining Decisions.

Prepared by Andrews & Murdoch, Berrien Springs, Mich.

A mine, referred to by name, is a permanent monument, within Laws 1895, Act No. 42, Sec. 1, requiring the notice of location of a mining claim to refer to some monument to identify it. *Kinney vs. Fleming et al.*, 56 Pac. Rep. (Ariz.) 723.

Where an action contesting the validity of a location is brought before the expiration of the time allowed by statute for the filing of the notice, defendant may show acts of location independent of a certificate of location. *Kinney vs. Fleming et al.*, 56 Pac. Rep. (Ariz.) 723.

Where a mine is referred to as a permanent monument in a notice of location of another claim, the burden is on one attacking the validity of the notice to show, as contended, that there is no such mine as the one referred to. *Kinney vs. Fleming et al.*, 56 Pac. Rep. (Ariz.) 723.

A mining claim was located in the name of four persons. The one who located it, who was the only one who had anything to do with it, testified that after working it awhile, he decided it was no good, and destroyed the monument, and went away, with the intention of having nothing further to do with it. *Held*, that the claim was abandoned, so that a subsequent location, made before the statutory time for forfeiture, was valid. *Kinney vs. Fleming et al.*, 56 Pac. Rep. (Ariz.) 723.

A notice of location of a mining claim, reciting that: "Said claim is 1,500 feet in length, and we claim 300 feet on each side of the center or discovery shaft for the full length of the claim. The general course of this lode deposit or premises is easterly and westerly"—sufficiently complies with Laws 1895, Act No. 42, Sec. 1, requiring such notice to contain "the number of feet in length of said claim, and the number of feet claimed on each side of the center of the discovery shaft lengthwise of the claim," and "the general course of the lode, deposit or premises located," so as to be admissible in evidence. *Kinney vs. Fleming et al.*, 56 Pac. Rep. (Ariz.) 723.

A valid agreement, definite, and fair and reasonable in its terms, was made for the lease of a tract of coal land, to be mined by the lessee. The lease would necessarily extend through a number of years. The quantity to be mined each year was uncertain, and payment of a royalty was to be made to the owner according to a sliding scale, varying from year to year. Owing to a known fault in the vein, but the extent of which was unknown, the total quantity of coal to be mined was very largely a matter of uncertainty. *Held*, that specific performance of the agreement would be decreed at suit of the lessee, on the ground of the inadequacy of his remedy at law for non-performance, arising from the impossibility of determining the amount of his damages with any reasonable degree of certainty.

WHITE HILLS.

The prosperous camp of White Hills, Arizona, has a history comparable with no other camp in Arizona. Some years ago an Indian found a peculiar looking mountain among the surrounding white hills, which attracted his attention, and he began an investigation of it in his primitive way.

The country rock proved to be a red, clayey substance and the mineral veins traversing through the mountain were highly impregnated with silver and lead. The Indian told an old prospector of what he had found and through some arrangement the prospector located the ground, which he held for several years and eventually disposed of it to R. T. Root, a noted mining man of Mohave county.

Through the energy and perseverance of Mr. Root, English capitalists were interested in the property, and buying up the mountain claims, which had been located in the neighborhood, they began development work under the name of the White Hills Mining and Milling Co.

Some 78 claims are now included in the patent which holds the ground, and some of the richest silver ore ever produced in Arizona has been taken from the numerous prospects and mines owned by the company.

A ten-stamp mill was placed on the ground which did good service until the latter part of 1896, and the fore

part of 1897, when the erection of a 40-stamp battery was begun. The mill is one of the ordinary wet crushing type, including amalgamating pans and settlers.

The ore car dumps the ore over an inclined bar screen or grizzly to the crusher floor. The ore then passes through the crusher into the ore bins, from whence it falls down through inclined chutes, controlled by ore gates, as fast as is required, into the automatic ore feeders which supply the stamps uniformly and as fast as necessary.

After leaving the batteries the pulp flows into settling tanks where the excess of water is drawn off. The remaining thick pulp is shoveled in regular charges into the amalgamating pans in which it is worked several hours (from six to eight hours). The contents of pans are then run into large settlers where the quicksilver with the precious metals in the form of amalgam settles to the bottom. The quicksilver and amalgam are separated in the strainer, and the amalgam is

then cleaned from all the waste matter in a clean-up pan. After this the amalgam is heated in a retort. The precious metal remains in the retort while the quicksilver evaporates and condenses again in a condenser connected with the retort.

The principal mines which the company are now working are the Noima and the Treasure. Between eighty and one hundred men are employed at the present time. The main difficulty encountered in the successful operation of the property is the lack of water.

Extensive works have been completed for the storage of water, a reservoir some 90 feet in diameter has been excavated, and lined with concrete. A pipe line has been laid some miles up the mountain to a place where water is to be secured, but the extremely dry weather the southwest has witnessed the last few years has had a bad effect on the supply obtained here and water from the mines is the only source of supply at the present time.

The company is at present leasing its

Theo. Lexow, the importer of Carbon and Bortz, of 195 Broadway, New York, has removed his office to Nos. 12 to 16 John street, near Broadway. This firm is one of the oldest establishments of the kind in America.

Graphite is one of the forms of carbon, the same as the diamond and charcoal. It is not affected by any degree of heat, nor by acids or alkalies. This property makes it of great practical value, and enormous quantities are used in the manufacture of goods for a thousand different uses.

Amalgamated Copper Company.

So much has been said of the great copper combination, and the stock of this combine has attracted so much attention, as will be seen by our Boston correspondence on another page, that we deem it advisable to give our readers the facts of the subject.

The charter of the Amalgamated Copper Company, present issue of capital, \$75,000,000, with power of unlimited increase has been filed at Trenton, N. J. In New York City the company organized for business with the following officers and directors: President, Marcus Daly; vice president, H. H. Rogers; secretary, and treasurer, Wm. G. Rockefeller. Executive committee: President ex-officio,

Wm. Rockefeller, Henry H. Rogers, A. C. Burrage. Directors: Marcus Daly, Wm. Rockefeller, Henry H. Rogers, A. C. Burrage, Robt. Bacon of J. P. Morgan & Co., R. P. Flower, of Flower & Co., F. D. Olcott, President Central Trust Co. of New York, James Stillman, President National City Bank.

Seventy-five million dollars of the capital stock is offered for public subscription at \$100 per share by the National City Bank of New York.

Commissioner General Peck has cabled to Major Fred Brackett of the United States Commission to the Paris Exposition, announcing that he has secured an additional 8000 feet located in the Vincennes annex, which space will be devoted to the display of American articles. Colonel Peck expected to leave Paris for New York May 13.

All exhibitors desiring to exhibit in this new section of space will communicate with the Commissioner-General in the Auditorium at Chicago, Ill.



WHITE HILLS, ARIZONA, (LOOKING SOUTH).

numerous prospects to the "chloriders" on a royalty and no doubt other large properties will be found among them.

The town of White Hills is located about 60 miles north of Kingman, in Mohave county, from which place all supplies are at present hauled by teams; but a railroad from Kingman to White Hills is now in course of construction under the management of the Santa Fe Pacific Ry. Co., and it is expected by some that the railroad will be continued on to Salt Lake City, in which case a vast territory of rich mineral land will be opened up for location. One view printed herewith of White Hills is an excellent one and clearly shows all the important places of business in the town, and the road to Kingman. The new 40 stamp mill when in course of construction is shown in the dexter side of the illustration.

On another page we present a view of the plant as it appears to-day, being a rear view, showing drainage tanks, where the water is returned to mill.

Southern California Counties and Their Output in 1898.

LOS ANGELES COUNTY.

Bricks	25,908 M.	\$ 188,386
Clay.....	50 Tons	500
Gypsum.....	2,500 Tons	18,500
Macadam.....	23,400 Tons	32,500
Petroleum.....	1,462,871 Bbls.	1,462,871
Sandstone.....	10,500 Cu. ft.	5,250
Serpentine.....	750 Cu. ft.	3,000
Sulphur	2 Tons	50
Gold		23,300

Total. \$1,734,357

ORANGE COUNTY.

Bricks	300 M.	\$ 2,400
Coal.....	800 Tons	3,200
Petroleum.....	60,000 Bbls.	60,000
Total.....		\$65,600

RIVERSIDE COUNTY.

Asbestos	10 Tons	\$ 200
Bricks.....	560 M.	5,800
Clay	9,500 Tons	10,450
Coal	6,200 Tons	15,000
Granite	11,600 Cu. ft.	8,000
Salt	5,000 Tons	10,000
Lime	8,000 Bbls.	7,000
Gold		189,188
Silver.....		1,385

Total..... \$247,022

KERN COUNTY.

Antimony.....	40 Tons	\$ 1,200
Asphalt.....	1,850 Tons	50,000
Bricks	2,000 M.	14,000
Lime.....	42,000 Bbls.	29,900
Petroleum	10,000 Bbls.	10,000
Gold.....		1,017,930
Silver.....		6,543

Total. \$1,129,57

The Pneumatic Supply and Equipment Co. has been organized under the laws of the State of New York and has opened an office at 120 Liberty street, New York. It is the purpose of this company, as its name implies, to deal generally in compressed air equipment and it will make a specialty of the installation of complete plants, eliminating the division of responsibility which has heretofore



PLANT OF THE WHITE HILLS MINING AND MILLING CO., WHITE HILLS, ARIZ.

VENTURA COUNTY.

Asphalt	4,105 Tons	\$ 80,775
Bricks.....	286 M.	2,288
Petroleum.....	427,000 Bbls.	571,000
Total.....		\$654,063

SAN BERNARDINO COUNTY.

Borax.....	8,000 Tons	\$1,120,000
Bricks.....	2,000 M.	16,000
Cement.....	50,000 Bbls.	150,000
Granite.....	3,550 Cu. ft.	7,630
Lime.....	50,000 Bbls.	35,000
Marble.....	1,200 Cu. ft.	8,000
Paving Blocks.....	390 M.	7,410
Limestone.....	6,600 Tons	6,600
Gold.....		261,512
Silver.....		32,000

Total..... \$1,644,152

SAN DIEGO COUNTY.

Bricks.....	672 M.	\$ 2,688
Granite.....	6,500 Cu. ft.	4,875
Mineral water.....	4,320 Gals.	3,000
Rubble.....	6,623 Tons	5,359
Salt	600 Tons	5,000
Gold		673,196
Silver.....		300

Total..... \$694,418

SANTA BARBARA COUNTY.

Asphalt	19,735 Tons	\$351,400
Bricks	100 M.	700
Mineral Water.....	15,000 Gal.	7,000
Natural Gas.....	135,000 Cu. ft.	135
Petroleum	132,217 Bbls.	112,549
Gold.....		1,000

Total..... \$472,784

existed in the trade. The company's bringing out several specialties in the compressed air line, such as Pneumatic Oil Rivet Forges, quick acting Hose Couplings, and has in addition closed agencies for several standard types of compressors.

Mr. J. W. Duntley, the President of the Chicago Pneumatic Tool Co., is the President of the new company; Mr. E. B. Gallagher, formerly with Messrs. Patterson, Gottfried & Hunter, is the Vice President and Engineer, and Mr. W. P. Pressinger, formerly Manager of the Clayton Air Compressor Works is Secretary and Treasurer.

The rapidly widening scope of compressed air application opens a large field of usefulness for the new company and the character of its incorporators is an assurance of its ability to meet the requirements of the trade.

ANTHRACITE COAL IN PERU.*

(BY WILLIAM GRIFFITH, C. E., SCRANTON, PA.)

Anthracite coal has for a long time been known to exist at various points in the Andes Mountains of Peru, and is mentioned in the writings of Peruvian authors and travelers. Up to the present time, however, there has been no use for it, locally. The silver mines, which are plentiful, have always been worked in the most primitive way and never below water level, so that there has been no necessity for steam fuel. Lignite, which gives a flame and is abundant in some places, has been preferred for roasting ores in the lixiviation process, which is the method most extensively in use for the extraction of silver. The climate is such that no artificial heat is required for warmth, and a few sticks or handful of charcoal is sufficient for the primitive methods of cooking in the mountains.

There has therefore, until recently been no effort made to prospect or in any wise develop the Peruvian coal; consequently, but little is known in Peru of the extent or value of the anthracite in the Andes.

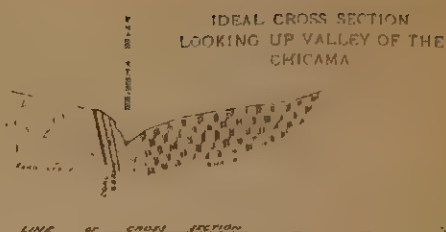
We were called upon, during the past year, to make a hurried investigation of the coal resources of a vast area in northern Peru, and this paper is composed in part of extracts from our report.

TOPOGRAPHY AND CLIMATE.

The region along the coast of Peru is mostly a desert plain for about 20 miles in width, and to the eastward of this rises the precipitous wall of the Andes Mountains. Near to the coast the climate is temperate and delightful, a continual breeze from the ocean rendering the temperature very regular, as it averages about 70° the year round, occasionally running as low as 65°, and seldom rising higher than 80° in the middle of the day. It seldom or never rains, and the sun shines continually the year round. Of course, this condition of climate prevents the growth of vegetation along the coast. The only tree which grows spontan-

ously is the Algaroba, which is a hard, tough wood similar to locust, and is used largely for fuel, both for domestic purposes and for power. The soil on this strip of coast land is very fertile. When cultivated by means of irrigation from the streams which flow into the Pacific, it produces luxuriantly all sorts of tropical fruits, rice, sugarcane, corn, potatoes, yuca, barley and other grains. The climate in the interior portions of the coast land not reached by the tempering winds of the ocean, is somewhat hotter than on the coast, the arid condition existing even to an elevation of about 9,000 feet above the sea.

Passing beyond the limits of the desert land,



carrying a large quantity of water. They are impassable and dangerous to ford during this season, but during the dry season of the winter time they become very low, so that oftentimes the water is all taken for irrigation purposes, and none reaches the ocean.

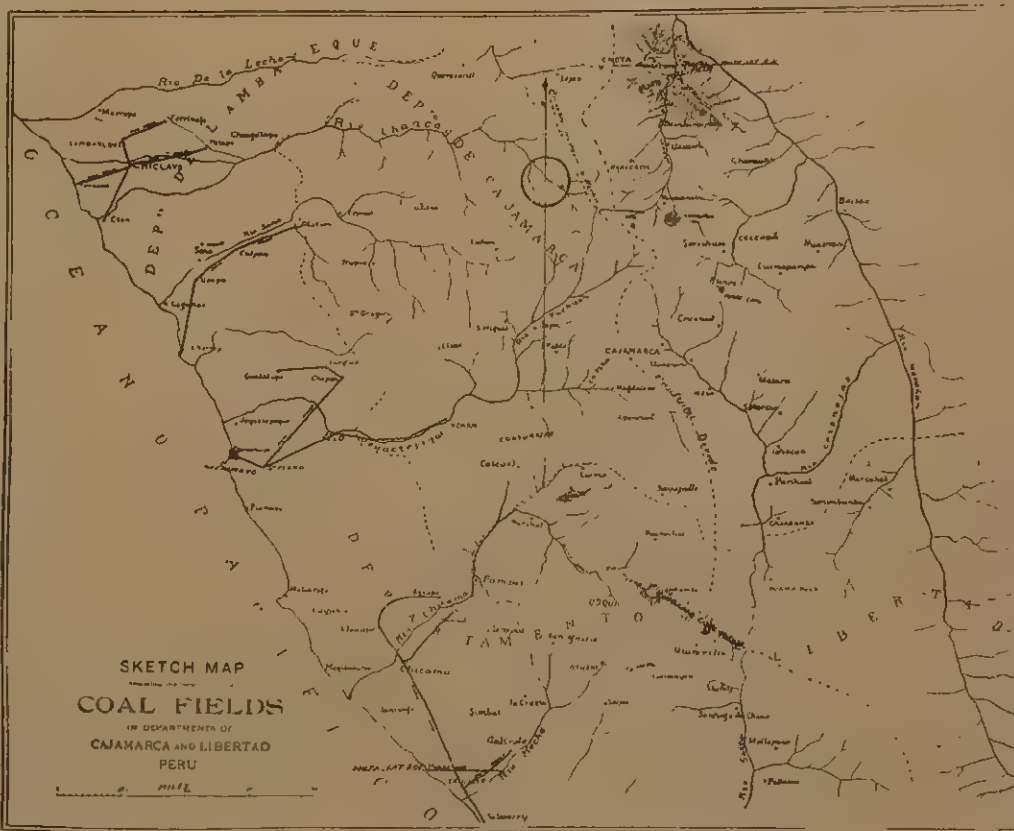
The table land of the Andes is reached only by means of the narrow, crooked trails, which wind about or up and down over the rocky and precipitous mountain slopes and ravines, which are in places more or less dangerous. These trails can be traversed on horse or mule back, which is the only means of access to the interior.

There are two or three railroads which extend from the coast at Pacasmayo, Eten and Salaverry up the comparatively flat valleys of the larger streams, a distance of 30 or 40 miles, reaching an elevation of about 3,500 feet above tide. None of them, however, are extended up the precipitous slope to the top of the plateau.

After once ascending these steep mountain sides, we find an elevation of about 10,000 or 12,000 feet, a totally new and entirely different condition of affairs from that which obtains on

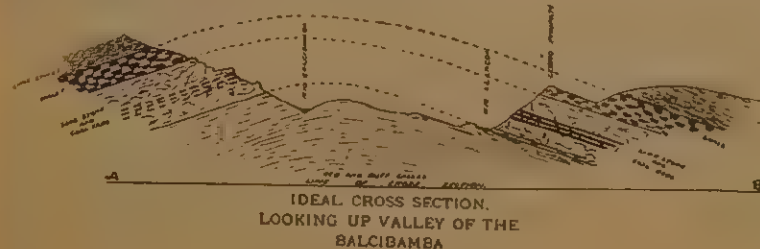
the coast. The surface has an average elevation of about 12,000 feet. It is covered thickly with a succulent grass known locally as the pampas grass, which grows a foot or 18 inches high, and is a most excellent food for cattle. The surface of the country is much broken and very irregular. Multitudes of mountain peaks are to be seen stretching up from 500 to 2,000 feet above the general level, while the limpid streams which are formed by the copious rains of the wet season, and the occasional showers of the dry season, cut deep channels for themselves through the surface of the plateau. The valleys of these streams, while often deep canyons containing a more or less luxuriant growth of small trees, bushes, ferns, vines, etc., are occasionally broad, fertile valleys which are doubtless susceptible of extreme cultivation.

The climate on this mountain plateau, during the wet season, is extremely disagreeable and stormy. It rains nearly every day,



we come to the foothills of the Andes Mountains. The mountain plateau back of them is about 12,000 feet in height, with the sides toward the ocean deeply plowed by the rugged, precipitous canyons which are cut in their sides by the streams which find their way to the ocean.

Within the limits of the region in question, the following principal streams have their source in the Andes and flow westward to the Pacific, namely: The Chancay, the Sana, the Jequetepecque, the Chicama and the Moche Rivers. These streams during the wet or summer season, are raging mountain torrents,



* Journal Franklin Institute.

which causes the trails to become muddy, slippery and extremely dangerous, particularly on the precipitous mountain slopes. During the dry season the weather is very pleasant and averages about 60° at mid-day, and in the higher altitudes, during the night about 40°, although it occasionally falls as low as 32°. The soil is exceedingly fertile, and in many places can be cultivated without irrigation, producing abundantly crops of potatoes, alfalfa, corn, wheat and other grains; but owing to the lack of transportation very little land is cultivated except by the Indians on the small gardens or farms around their huts.

This plateau is divided into two parts by a longitudinal ridge about 90 miles distant from and parallel to the coast, having an elevation of 13,000 feet, with an occasional peak towering far above. This ridge forms the Continental Divide of South America. The streams previously mentioned drain the western slope, while the eastern slope is watered by the many streams which flow eastward and northward into the Marañon River, which may be considered as the main source of the central trunk of the Amazon River system. In this vicinity this stream is said to be a swift mountain torrent flowing in a rocky canyon, its course being nearly north, parallel to the coast.

GEOLOGY.

The geology of this territory, as observed in a hasty way while traveling along the precipitous trails, would seem to consist mainly, near the coast, of a thick formation of red and buff shales apparently of the triassic age. These sandstones and shales are cracked and ruptured in numerous places by dikes of granite, trap and other igneous rocks. They are apparently surmounted in the interior by the more recent rocks of the jurassic, cretaceous or tertiary age, consisting, first, of great thickness (2,500 feet in places) of fine-grained light gray or white altered sandstone, approaching quartzite. Overlying this is a considerable thickness of softer sandstone, red, yellow and buff shales and black slates, and this is again capped by measures consisting largely of a very thick formation of limestone which, in the vicinity of Hualgayoc and Bama-marca is apparently several miles in thickness and contains many fossil shells of recent age. All of the above formations are most beautifully stratified, and their high and vertical cliffs present a picture delightful to the eye of the geologist.

While the above presents a general idea of the formation of the mountains, the rocks are by no means regularly disposed, being ruptured and distorted in a marvelous manner in places, by the fierce volcanic action which has prevailed in past ages. The canyons cut into the western slope by the streams flowing towards the ocean, present a marvelous picture of rock stratification, showing the formation to be twisted and contorted in all directions, while the eruptive rock consisting of granite, trachyte, porphyry, and all sorts of breccia, tufa, etc., is visible at every turn, and immense dikes and high mountains of igneous rock are visible scattered about all over the area covered by this territory. Where the dikes have forced their way, the upheaval and distortion of the underlying rock formation due to this volcanic action is plainly to be seen. In some parts these disturbances are more marked than in others; great mountains of trachyte, granite, etc., tower 1,000 or 2,000 feet above the plateau, while in other places the regular sedimentary formation still remains nearly normal, only slightly tilted

from the position in which it was originally deposited. In these latter portions of the plateau the stratification is oftentimes quite regular and free from volcanic rupture.

The rock formation where not so much disturbed by volcanic action, is disposed in a series of large basins and saddles. The axes of these saddles or anticlinals have a general direction from the northwest to the southeast. A longitudinal section of the mountain range parallel to the coast would probably show these basins and saddles following one after the other, giving a wavy appearance which would be very much distorted and twisted in the region where it is much disturbed by the upheavals due to the eruptive rocks. Where these basins are very deep, we would have them filled by a sandstone and limestone of the more recent age, which are more or less eroded or washed off from the crests of the upward rolls or anticlinals.

(To be Continued.)

THE REDUCTION OF ORES.

BY C. E. ROGAHUS, OF SEATTLE.

(Continued from our issue of May 1st.)

We will now start with an ore at the mine and carry it through the lead smelter.

At the mine the owner has three grades of ore, shipping, concentrating and refuse. His shipping ore is either the pay streak, which breaks down clean without any poor material being mixed with it, or is separated by sorting, which is selecting the high grade for shipping, using the hammer for breaking when necessary, placing the balance with the second grade or throwing it over the dump down the ravine as refuse.

This seemingly simple point is in fact one of the important ones about a mine. A well-trained man is necessary for the position. He must have a quick perception and be one who studies his ores. Every variety of ore should be tested by him. He should not only know that a certain appearing piece carries value, but how that value is there, whether as ruby silver, in the gray copper, with the lead, carried with one of the sulphurets or some of the dozen more combinations possible. Many a mine has had thousands of dollars thrown down the ravine from careless sorting by men who "knew ore."

While at the mine, the second grade had better be treated, if low-grade but with a small percentage of mineral, it can be concentrated the same as the sulphurets of a gold ore as mentioned. In concentrating, the ore must be thoroughly understood as to where the ore lies to know what to save and how to crush. Some minerals of high value are brittle, pulverizing easily, and if not correctly handled the value will be lost. An ore high in sulphurets but of low value can only be treated by some of the cheap processes of the future; it cannot be concentrated by mechanical means. Ore that cannot be put three or more into one is not worth doing anything with, as the loss and cost equal the gain. Galena, iron and copper sulphurets handle nicely.

The concentrates are sacked and shipped with the regular ore to the smelter. Upon arrival it is weighed and the ore shoveled into an ore breaker. Coming from this it is shoveled into cars or conveyors, every tenth shovelful being thrown aside as a sample. If the concentrates are a large shipment, every tenth sack is set aside as a sample. The ore sample is crushed again and taken to a sampling floor, thoroughly mixed and cut into quarters, the two diagonal quarters taken, the other

two thrown away. The part saved is remixed and quartered again, and this process is continued until there is about 100 pounds, when it is quartered and the two halves sacked. One half is labeled and put away for future reference in case of a dispute. The balance is taken to the sampling room, crushed finer and quartered down to between one and two pounds, when it is dried, pulverized to pass an eighty-mesh screen and sent on to the assay room, where, after thorough mixing, it is divided into three samples, one for the smelter, one for the seller and the third to be sent to a reliable assayer as umpire in case of a disagreement. The assays usually check (agree) but sometimes a shipment will have to be resampled and it occasionally takes a year to settle satisfactorily to both parties.

All samples are tested by the smelter for gold, silver, lead, copper, iron, lime, zinc, silica and antimony when present. The ore is not put in the furnace and the seller paid for the ounces of gold and silver extracted, but he is paid entirely upon the assay or sample taken. Part of a shipment may not be smelted for two or three months after receipt, and then never smelted in the furnace alone. As stated, each ore must be fluxed. In lead smelting this is the proper combination of silica, iron and lime. To the superintendent the ore has four parts, precious metals, valuable base metals, worthless base metals and the gangue. Saving the highest percentage of value at the least cost is his aim. Ores are bought which can be mixed and the proper combination of silica, iron and lime obtained if possible, for by so doing so much ore is being melted instead of the same amount of dead flux, which must be added in case of a deficiency: iron ore for the lack of iron, limestone for the lime, and quartz for silica. In most cases there is an excess of silica, which necessitates the purchase of iron and lime. The smelting charges are made accordingly. A fixed rate is made on a neutral basis: when the silica equals the iron and lime. When the silica is in excess a charge of 15 cents per each unit in excess is made, but 15 cents is paid for each unit the iron and lime are in excess of the silica. In regard to the detrimental metals, zinc and antimony, a limit is established, in the amount allowed in an ore. (At present in Washington this limit is ten per cent.) Below this limit the ore is treated without extra cost, but above that an additional charge of 50 cents for each per cent in excess—a 12 per cent zinc ore would cost \$1 extra.

(To be Continued.)

DRY GOLD PLACERS.

BY PROF. GEO. H. STONE.
(Continued from our issue of May 1st, 1899.)

The more common dry-placer deposits are of two kinds:

1. Placer Gold in the ruins of sedimentary rocks.

In the region of the Plains, Rockies and Great Basin we find many places whence deep bodies of sandstone and conglomerates have been eroded. These rocks, like all assorted sediments, contained more or less of transported gold.

In such regions it becomes a matter of great importance to determine where is bed rock. The placer miner's bedrock is any layer that the gold cannot sink through. In the case of constantly running waters the sediments in the bed of the stream are all water washed and usually rather coarse. Being always wet they are unconsolidated, and they are subject to vibration due to the motion of the water.

For these and other reasons much gold settles to the bottom of the gravel next the solid bedrock, as is the case of both the modern and ancient auriferous gravels of central and northern California. Yet even there we sometimes find a layer of pipe clay or other matter so impervious to gold as to form a false bedrock.

In the arid region the gold was mostly transported by streams that flowed for a few hours and then ceased to exist. There was no time to soften the underlying earth except for a few inches. In such a country there can be no one predominant bedrock, and the gold cannot settle upon true bedrock except when that happens to form the bottom of a wash or channel.

It is therefore necessary for us to divest ourselves of the idea that bedrock in the dry regions is where it is in the wet regions. The two regions are very different. In the dry countries there are many bed rocks. One of the most important of these is that which exists at or near grass roots. Many do not suspect the existence of such a bedrock and therefore it has done a great deal of mischief. Take, for instance, the case of sedimentary rocks that are being removed by erosion. They fall to pieces and form an earthy soil. Occasional snows and drizzly rains soften this soil till it is practically in the condition of mud to a depth of several inches. If there was gold in the rocks it now sinks in the mud till it reaches the harder earth beneath. At the bottom of that portion of the soil which at any time becomes so softened as to allow the gold to sink through it, we find a false bedrock. The surface soil is much more porous than it would be, because penetrated by a network of growing and decayed roots of vegetation. Erosion by rains and winds takes place chiefly from the surface soil through which the gold has sunk. The surface soil thus practically serves to protect the gold from being carried away. The net result is to erode the waste of the sedimentary rocks relatively faster than that which contained the gold. This is, in fact, a process of concentration. In many places hundreds and even thousands of feet of sediment have been eroded. These beds all contained small quantities of gold. Most of this gold can now be found on the false bedrock that in the arid region exists a few inches below the surface.

Time and again the miner has prospected the high mesas. At grass roots he found pannings at the rate of five to twenty-five dollars per cubic yard. These pannings were made on a bed of gravel several hundred feet deep. He expects these gravels will become richer all the way down. A company is formed to work these marvelous deposits. The stockholders expect enormous dividends "when we get to bedrock." They bring in water at a big expense and put up a \$10,000 house for the engineer. The hydraulic giant is set to working along true bedrock and all summer they are breathless with expectation. When the clean-up comes they find the mass of gravel as a whole does not average a cent to the cubic yard. They wonder how they came to make so big a mistake. The way it happened was as follows:

Their gravel consisted of an old Tertiary lake bed. From its surface hundreds of feet of the old lake gravel and sand have been eroded, but most of the gold that was scattered through this deep body of sediments has been concentrated by the natural process and is now found on the false bed rock at the bottom of the soft surface soil. This false bedrock contains hundreds of times as much per

yard as the average of the lake beds. The stockholders turned their imaginations loose and pictured the riches of bed rock. They were already at bedrock, the richest bedrock they were ever to find.

Shallow or grass-roots concentrations of a similar character can be found wherever sandstones and conglomerates have been eroded. They are often known as high bench placers. Beware of them unless your samples are taken all the way down to the bottom of the deposit.

The moral is plain. When you are in a dry region throw away all your ideas of bedrock derived from a wet region. The laws applying to the two cases are different. Bedrock is where you find it. In a dry country you can expect several, often many bedrocks at various levels. In many cases the grass roots bedrock carries more gold than any other you will find. This is always the case in placers composed of the ruins of sedimentary rocks.

2. Placer gold contained in wash from volcanic mountains.

As a type of this class of deposits we take the dry placers of San Pedro and Golden in the southern part of Santa Fe county, and those of the Jicarilla mountains in Lincoln county, New Mexico.

These mountains are composed of various light colored acidic eruptives. They rise from 500 to 1,500 feet above the surrounding plains. They have steep slopes and have begun to be dissected by numerous valleys of erosion. In both localities the eruptive rock has uptilted the sedimentaries. This indicates that the eruptive masses began their careers as laccolites, but toward the last the lavas found vents and rose as dikes and in the Jicarillas also overflowed on the surface. There are no breccias indicating explosive eruptions in either place.

(To be Continued.)

CORRESPONDENCE CALIFORNIA.

(From our Special Correspondent.)

ISABELLA. KERN CO., CAL., May 4, '99.

EDITOR JOURNAL: I am pleased to hear of the organization of the Southern California Branch of the California Miners' Association. I would like to have been present at the meeting, April 29th.

Kern County was almost exclusively a mining county, and the county seat was at Havilah. Not one of our old quartz claims are known to be exhausted, while one of them will produce \$75,000 in bullion this year. Still, the men actually engaged in mining seem to have fallen into a mood of unconcern as to the condition of mines throughout the state. Miners seem to look upon these organizations as tricks on the part of boomers. It will be difficult to secure members from this section at present, but I believe they will all come in later on.

Then glaring frauds have been organized, assuming to operate here, and it is understood and known, in fact, that easterners, and even European markets have been flooded with millions of shares of worthless stock, claiming to represent mines (small mines) here, which in reality have not yielded bullion for thirty or forty years. I wrote you something like a year ago in regard to a supposed case which in fact had its parallel here. The company was incorporated under the laws of Colorado, had its principal office in Toronto, Canada, had the office of its principal secretary at Rochester, N. Y., held its elections in the City of New York, without refer-

ence to street or number, had agent and office in London, was capitalized for \$2,000,000, issued none but "paid up," "unassessable," stock; and never took one dollar except what it obtained from a leased mine and paid two dividends on stock. These men were all strangers in these parts, but showed themselves ready and willing to represent mining interests here.

I hope your honest effort to organize those friendly to mining may be a success.

Respectfully,
STEPHEN BARTON

Virginia Dale District.

(From Our Special Correspondent.)

SAN BERNARDINO CO., CAL., May 4, '99.

Ames & Yager, of the Brooklyn mine, now have all their machinery on the ground for the new mill they are building for the purpose of working the ore from the Brooklyn.

Ellerman & St. German of the Ivanhoe mine have just completed their mill and will be ready to start up in a few days.

We are glad to note the return of G. H. Harn to our camp. Mr. Harn is one of the owners of the O. K. mine, and is the first man that recommended the development of that magnificent property. He is generally considered the most experienced and shrewdest mining man Dale has ever had.

Joe Ingersoll left on this morning's stage for San Bernardino with two gold bricks weighing 160 ounces, taken from the O. K. mine.

J. J. Arbios' mill is running on ore from the Jean mine.
DALE MINER.

MASSACHUSETTS.

(From Our Special Correspondent.)

BOSTON, May 6, 1899.

EDITOR JOURNAL:—The copper share market has been in a state of practical stagnation for the last three weeks, but on Saturday, the 22nd, a new upward movement was begun which bids fair to eclipse all previous records. We look to see greater gains in the leading copper shares during the next thirty days than have ever been witnessed in the Boston market. After many days the long talked of consolidation under the management of the Standard Oil people seems to be almost ready for announcement, and already the leading stocks known to be involved have made rapid advances.

It is to be noted that the chief event of interest in copper mining circles during the last ten days has been the financing of the Amalgamated Copper Company. Other mining shares have been neglected and the trading in other copper stocks has been less than for six months. We believe this does not indicate a decrease in popular interest, but a diverting of attention from the general list to that of the Amalgamated Company for the time being.

During several calls at the office of Lawson, Weidenfeld & Company for subscription blanks, the writer was interested to observe the varied classes of people who were bent on the same errand. Men whose appearance denoted wealth, and others whose appearance indicated very moderate means; fashionable ladies and shop girls were all to be seen eager for information regarding the Amalgamated Copper Company. Scenes around the National City Bank of New York were the most remarkable ever witnessed under similar circumstances. No such rush for the privilege of subscribing to a stock was ever before known. The bank was besieged for days,

and an extra force of forty clerks was employed. Seventy-five million dollars worth of stock was over subscribed five and a half times, and the subscribers were from all parts of the United States and Europe. This indicates that the interest in copper mining is as strong as ever, and that the public is fully alive to the statistical position of the metal and the possibilities of reaping large profits from investments in legitimate copper mining enterprises. That New England is still the centre for copper shares can be seen from the fact that this section subscribed for \$200,000,000 worth of Amalgamated stock.

Several new companies have been quietly floated in the last few weeks, and among these is the Elm River property, which was so eagerly sought that the amount of shares for subscription was exhausted almost before the street learned that there was a new company in process of formation. Stock is now selling at a premium of three to five dollars over the subscription price. The Oneca is being quietly floated by W. F. Fitzgerald and associates, and it is understood that the allotments are in good demand. The Kaukauna is being floated by A. B. Turner and company, and although the subscriptions came in rather slowly at first, owing to the general apathy of the public at the time the subscription was opened, yet we understand that the list is being rapidly filled, and that the subscription books will soon be closed.

The Phoenix property is being brought to life again, and in spite of the dismal record which the first property made fifty years ago, the subscriptions are being rapidly taken in New York and Boston. The fact that John R. Stanton is to be the President of the new company created a strong following among New York and Boston investors.

We are of the opinion, however, that time will show how unwise it is to invest money in copper properties solely on the strength of the names of the backers. Standard Oil people cannot make copper where it does not exist, and we are of the opinion that many companies floated by less well-known people will prove to be better investments than some of those we have just mentioned. If investors would use the same intelligence in investigating the merits of the various copper mining propositions which are presented to them that they use in their business, there would be fewer failures to charge up against the mining industry. We believe that investments judiciously made in copper mines are the most profitable to be found in any line of industry, and yet we know that many schemes being floated are absolutely worthless. We sound this note of warning for the sake of the good name of legitimate mining enterprises, and we feel sure that time will prove our position to be a correct one.

Among the curb stocks Mayflower sold at 9¼, Victoria at 8 and Wyandotte at 10½.

ROBERT S. BICKFORD, Stock Broker.
No. 60 State street.

UTAH.

(From Our Special Correspondent.)

SALT LAKE CITY, UTAH, May 5, 1899.

EDITOR JOURNAL:—The Utah Mining share market this week was only moderately active. There was no marked pressure to sell, and a strong inclination to buy was not apparent. A prominent factor in the market at present is the rise in silver. It must be remembered that the price of metals has advanced heavily during the past year. Silver may be considered, under existing conditions

simply a bi-product of gold, copper and lead mines, and the same interests which have succeeded in acquiring control of copper and other mining have brought along the practical control of silver production. It is not to be believed that these interests, which have been so prominent in forcing the strong advance in copper, will fail to use their advantage and best efforts to start silver to a higher level. In illustration, it may be cited that the Anaconda copper mine of Montana is one of the largest producers of silver in the country, having an output of something like 6,000,000 ounces annually. Considering all this, the outlook for silver appears to me to be more encouraging than it has for years. The opportunity to double the selling price of silver is one that can hardly fail to be taken account of by the allied moneyed interests of the east. If my clients accept this view, they should act accordingly.

Ajax made very decided gains, under heavy buying and reports of improved conditions. It is rumored that the stock will soon be listed in Boston. Anchor was lifeless, as was also Alliance. Shipments of concentrates are now coming from the Bullion-Beck mill, and regular shipments of ore from the mines. There is some talk of dividends soon being increased. The stock was scarce and in good demand at ruling figures. Buckeye did nothing. Centennial-Eureka continued strong and in demand. Operations at the Chloride Point mill have not yet been resumed, although the leaching of ore should commence at once. The stock was again dull, but held around last week's figures. Good strength was developed by Daly, although the advance seemed to be entirely due to sympathy. At the close, the stock was scarce and in demand. Last week's figures were well maintained by Daly-West. The condition of the roads still prohibits the movement of much ore. A railroad spur will probably be put in as far as the mouth of the Ontario tunnel, and this improvement will prove a great saving to the Daly-West company on ore transportation. Dalton & Lark was featureless, but there are always plenty of buyers on any break. Dexter held up well, its support being continuous. Although very active, Dalton did not change materially. A complete change in management and directory occurred on Saturday last in Daisy, and the stock at once reflected the change in higher figures, selling up to 35 cents. On profit taking, it lost some of this new strength, however, but closes several points below the best. Mr. Arthur Murphy, a very practical mining man, is the new superintendent, and Mr. John Dern, president of the Mercur, is one of the directors. The mines will be worked more economically than in the past.

WASHINGTON.

(From Our Special Correspondent.)

SPOKANE, WASH., May 5, 1899.

The market has been extremely active, a large business having been done both in high and low priced stocks at a rise in prices. Republic Consolidated was especially in evidence and the eastern demand for this stock was extremely large. Very little of this stock, however, was obtainable, present holders being reluctant to sell at the price offered. It is the general opinion this stock will touch \$2 before sixty days. Orders for over 40,000 shares remained unfilled.

Mountain Lion was again very active and advanced 20c further.

Lone Pine was fairly active, while Morning

Glory advanced from 9c to 16c. This was the scalp of the week. This stock will bear watching. Insurgent was dull, owing to liquidation, the market closing 1c off at 11¼c bid. Princess Maude came to the front with a very lively local market, although Montreal was a free purchaser of this stock. The property is looking splendid, and the high values are now apparently assured. Butte & Boston is slowly regaining its losses. We understand this property is now under option and has been subjected to a most rigid examination resulting in a very favorable report from the expert. San Poil was somewhat weak, as also Eureka Queen; the latter, however, has been a great favorite in the east for the past two weeks. Should the consolidation of the Blacktail, San Poil and Lone Pine be effected, Eureka Queen will play a very important part. Surprise was a prime favorite, development proving a vein 17 feet wide, assays from which we give in detail: No. 1, \$8.06 gold; No. 2, \$4.38 silver, \$12.82 gold; No. 3, \$6.00 silver, \$27.28 gold; No. 4, \$7.00 silver, \$12.00 gold; No. 5, \$9.75 silver, \$25.83 gold; No. 6, \$5.40 silver, \$11.48 gold; No. 7, \$13.52 silver, \$35.67 gold. Combined averages give an average value of \$26.23. Pearl was in slight demand. Quilp was very weak, closing at 11¼ bid, a net loss of 4c. Rebate is developing well, and insiders have gathered in the floating stock. Patrick Clark is accredited with having secured an option on all the large holdings. Looking backward extension of the Rebate is showing up well and we look for some heavy advances. Troubadour is showing up wonderfully and is a great favorite among investors on the Sound. Blacktail regained some strength on the report of the consolidation. Tom Thumb people are pushing development, but the stock, like that of Ben Hur, is very little in evidence.

Opportunities for securing large returns upon investments were never so favorable. Seven companies which were organized and floated in September, 1898, for \$415,000 are today selling for over \$3,500,000—more than eight times the purchase price.

Republic declared its usual monthly dividend of \$35,000, payable May 15th, making \$190,000 in all.

BRITISH-CANADIAN INVESTMENT AND MINING SYNDICATE.

Miscellaneous Mining News.

ARIZONA.

Richard Farrell has made a shipment of the copper ore from his mines three miles from Harshaw. The ore will average 20 per cent. copper and 12 ounces in silver. The ore goes to the Silver City Reduction Works.

Harry Carpenter returned to Yuma the first of the week from a trip to Globe, where he made the first payment of \$4,000 on the McCoy group of copper mines on which Senator Dorsey has secured a bond of \$40,000. The mines adjoin the Old Dominion property and are considered one of the best copper propositions in the territory. Mr. Dorsey also has a bond on other property in the Globe district on which he will make the first payment of \$7,500, ten per cent. of the purchase price, the first of next month.

D. M. Riordan, president of the King of Arizona gold mines, says there are sixty men working in the mines. At a depth of 200 feet the body of ore is very large and very fine grade, which has been determined by drifting

and cross-cutting. Arrangements have been completed to bring water to the mill from the Colorado river, a distance of 37 miles, and the project will be completed inside of four months. When this is completed the King of Arizona will be one of the great gold producers of the Rocky Mountain region, and it will be turning out daily many thousands of gold dollars.

ALASKA.

Mill tailings at the Alaska Treadwell mine average about 50 cents per ton. The concentrates are treated by the chlorination process, about 90 percent. of the assay being saved. Doubtless, as in other cases, a higher percentage might be saved, but where 90 per cent. is saved at a profit it is more satisfactory from a commercial point of view than to lose money saving an extra five per cent. There is no data to hand since the 520 new stamps lately installed began operations, but it is learned that during the preceeding ten years the mill crushed 2,536 tons of ore, yielding \$5,705,697.30 in free gold and \$2,183,170.64 in concentrates. During that time the average cost of mining and milling was \$1.47 per ton, and at times the cost of milling was 30 cents per ton. During the ten years mentioned the aggregate profit was \$4,167,154.99.

CALIFORNIA.

AMADOR COUNTY.

The Treadwell mine at Sutter Creek, which had on it a small mill, was neglected by the Treadwells, who owned it, and M. D. Nixon located and filed on it. The former owners gave Nixon a deed to the mine and he allowed them to remove the machinery. Nixon is arranging to organize a company to operate the property.

Work has been commenced at the Newton copper mine at Ranlett. The water is being taken out of the shaft preparatory to making repairs, reopening the drift and crosscuts and taking out ore. The smelter is on the ground and will be erected in time to begin smelting as soon as ore can be extracted. Arthur Ranlett is superintendent of the works.

The Reward mill, at Pine Grove, is pounding away night and day on Tellurium rock, and two teams are engaged in hauling rock from the mine to the mill. About 20 tons are crushed daily. Operations at the Tellurium consist of cleaning out and repairing the tunnel, which is about 1,400 feet in length. The tunnel is tapped by a shaft 330 feet in depth. It is expected by the management of this mine to rush development work as rapidly as possible.—*Amador Ledger*.

CALAVERAS COUNTY.

The Bald Hill mine at Albany Flat, is showing up splendidly and meeting every expectation of the company now operating it.

The 5-stamp mill at the Demarest mine, below Fourth Crossing, was started up this week. Some fine looking rock is being run through the mill and good results are expected.

W. H. Clary, former superintendent of the Sheep Ranch mine, has taken a bond on the mine belonging to the Flamm Brothers, near San Andreas, and will commence to develop the property at once.

EL DORADO COUNTY.

William Craddock and Thomas Swansborough, who have been at work on the Dench & Craddock mine on the eastern side of Quartz Hill for some time, are preparing to make a

run with a two-stamp mill. The vein is small but the rock is rich.

A new mining enterprise is being started two miles from Nashville, on a ledge located on Charles Evans' ranch. San Francisco capital is engaged in the work and James Richards is superintending it. Beach & Co. have contracted to put up hoisting works, a boarding house, offices, etc., to accommodate the employes while property is being developed.

A rich body of ore has been struck on the 600-foot level at the Griffith Consolidated.

At the Crown Point, south of the Griffith, a strike of high-grade ore is reported on the 400-foot level. The ledge on this level is five feet in width, two feet of which will go from \$70 to \$125 per ton and the other three feet from \$8 to \$12 per ton.

COLORADO.

Colorado Minerals for 1898.

Following are the figures by counties and the total production of gold and silver in Colorado to date:

County.	Value of Gold.	Market Val. of Silver.
Arapahoe....	\$ 702.78	\$ 4 08
Archuleta....	144.69	23.30
Boulder....	581,302.41	53,259.14
Chaffee....	227,535.36	49,671.52
Clear Ck....	605,527.65	913,949.49
Conejos....	18,354.96	17,345.10
Costilla....	5,518.89	578.42
Custer....	723.45	14,165.82
Delta....	578.76	9.32
Dolores....	88,281.57	269,899.05
Douglas....	124.02	...
Eagle....	30,570.93	41,231.10
El Paso....	13,507,348.92	39,492.92
Fremont....	8,702.07	739.78
Gilpin....	1,983,513.87	178,062.68
Grand....	806.13	6.41
Gunnison....	81,005.73	89,006.00
Hinsdale....	51,282.27	108,610.62
Huerfano....	144.69	23.30
Jefferson....	1,839.63	59.42
Lake....	2,073,035.64	4,117,533.48
La Plata....	30,384.90	2,532.71
Larimer....	11,161.80	34.95
Las Animas	124.02
Mesa....	165.36	11.65
Mineral....	46,383.48	2,433,300.68
Montrose....	2,707.77	3,663.93
Montezuma	8,268.00	507.36
Ouray....	852,554.82	827,342.23
Park....	159,489.72	115,749.16
Pitkin....	71,001.45	2,316,759.78
Rio Grande	3,720.60	913.36
Routt....	12,753.39	1,265.77
Saguache....	19,677.84	1,524.99
San Juan....	1,132,591.98	610,750.68
San Miguel	1,572,676.95	1,240,190.27
Summit....	343,824.28	242,137.68

Total....	\$23,534,531.28	\$13,690,265.15
Total production for 1898:		
Gold, 1,138,584 ounces at \$20.67.....	\$23,534,531.28	
Silver, 23,502,601 ounces at .5825.....		13,690,265.15
Lead, 113,417,168 pounds at .0363.....		4,117,043.24
Copper, 10,870,969 pounds at .12.....		1,304,504.28

Total.....	\$42,646,343.95
Total production for 1898 ..	\$42,646,343.95
Total production for 1897.....	35,964,033.92
Increase.....	\$ 6,682,310.03
Per cent. of increase, '98 over '97.....	19

The foregoing statistics are from Bulletin No. 2 of the precious metal production for the year 1898 which has just been issued by Harry A. Lee, state commissioner of mines, and exhibits the same painstaking research that is characteristic of all the work of the State Bureau of Mines.

MICHIGAN.

The Oliver Mining Company is now one of the biggest iron ore miners in the world. The following is the list of active mines of which it has possession:

On the Mesaba range—Mountain Iron, Etna, Lone Jack, Mesaba-Mountain and Norman.

On the Vermilion range—Pioneer, Zenith and Savoy.

On the Menominee range—Iron River, Dober, Isabella and Miller.

On the Marquette—Buffalo, North Buffalo, Queen, Prince of Wales, Blue and the Lake Superior.

On the Gogebic—Norrie, East Norrie, North Norrie, North Aurora, Pabst and Tilden.

In this list are some of the finest mines to be found in the Lake Superior region.—*Iron Ore*.

From Agent B. F. Chynoweth, it is learned that the new shaft on the Knowlton vein of the Adventure has been collared and timbered down to the depth of 55 feet. Some difficulty was encountered with sand in this shaft, but they will have it under control in a few days, when the work of sinking will proceed faster. Work in No. 1 shaft, 1,400 feet westward, is advancing in drifts east and west, both in good coppery ground. Both shafts will soon be supplied with the latest hoisting machinery which is now coming in. As soon as this machinery is installed, the work of sinking will be pushed in both shafts.

MISSOURI.

Lead and Zinc.

Rudolph Finke, the well-known mine operator, and his associates purchased the Molloy and Randall mine on Kohnoor lease of the Empire ground, for \$15,000. The property comprises two mining lots, upon which is a mine showing rich ore. The old owners were Tim Malloy, Randall and Capt. Cholmondeley. The new company will be known as the Pearl Lead and Zinc Co., and they will begin at once to put up a mill.

The long-pending deal for the sale of the Minor & Rogers land at Aurora has been closed. The property transferred includes the 80-acre tract owned by A. H. Rogers of Joplin and S. H. Minor of Aurora, together with all the mines and sub-leases on the tract, and an adjoining tract of land. The purchasers are Boston capitalists and the price paid was \$500,000 in cash. The Tuttle & Co. mine, one of the richest ore producing properties ever opened in the district, is located on the Minor & Rogers tract and there are several other good mines upon it.

Encouraged by the outlook of the Brewer Bros.' mine on the Suapp-Warren lease at Tuckaboe, purchased two weeks ago by Dexter, Johnson & Co., and J. F. Wallach, of Chicago, through the agency of A. P. and H. C. Cosgrove, they closed the deal for the purchase of the entire lease of seventy acres from Morgan and Johnson. Thirty acres on

the Dixon land and forty acres of Snapp land. The consideration was not given out.

After this week, the tract will be known as the "Ajax Lead & Zinc Co.," and will be incorporated for \$150,000.—*Joplin Herald*.

NEVADA.

J. Morisci, lessee of the Pamlico mine, in Hawthorne district, last week shipped 22 sacks (4½ tons) of ore to Bob Stewart's mill at Soda, and as a result received a gold bar worth \$5,308. This is the result of one man's work for three months.

Jas. Balzar, who has a lease on another portion of the same mine, shipped about two tons of ore, which milled \$1,000. The mint receipts bear out these statements.—*Walker Lake Bulletin*.

NEW MEXICO.

Output of Hillsboro Mines.

Output of Hillsboro gold mines for the week ending Thursday, April 27, 1899, as reported for the *Adixale*

Wicks	20
K K	15
Richmond	35
Snake Group	65
Opportunity	2
Shepherd	5
Cannonville	10
Tripp	55
Rex Silver	5
Eureka	1
Frontier	1
Amorin	15
Walter	20
Total	255

Total output since January 1, 1899—4,705.

OREGON.

A few days ago, in Baker city, Oregon, the papers by which Messrs. B. B. Shephard, W. M. Dean and others became owners of the Mansfield placers, located at the head of Poker Gulch, about 1½ miles southwest of the old town of Auburn, were filed for record.

These extensive claims were purchased for a good consideration in cash, the price not being made public.

This new property is near placer ground which years ago yielded handsomely in gold. The purchase included three No. 1 giants and 2300 feet of 16, 11 and 7 inch pipe.

The new diggings will have a long run this season, plenty of water being available from various streams and the Auburn ditch. Seven men and one giant are now at work and the force of men will be considerably increased.

Mr. Shephard, the moving spirit in this enterprise, only about 10 miles from this city, is a rustler, and his numerous friends will be pleased if his activity brings a big reward to himself and associates.—*Baker City Democrat*.

SOUTH DAKOTA.

The owners of the Little Blue Fraction, in the Yellow Creek District, South Dakota, have recently shipped a carload of ore to the Spearfish Cyanide plant, for a test run a car was being loaded this week from the Wasp No. 2, in the same district, which was also to be sent to Spearfish. The mine owners in the

camp are making plans to erect a cyanide plant at the mines this season.

Last week, a large force of men was set to work grading for a site for a hoisting plant on the ground recently bonded by the Colorado Company, between Lead and Kirk, Dakota. The deal has been on some time, and it is gratifying to state that such a large enterprise has gone through. The company backing the undertaking is composed of prominent mining men with unlimited capital with which to work. It is believed that the Homestake ore bodies extend south through this block of claims, and it is the purpose of the company to sink a two compartment shaft to the ore contact as rapidly as possible.—*Black Hills Mining Review*.

UTAH

The Jefferson M. Co. has begun development work on its group of valuable claims about a mile north of Eureka. Mgr. P. T. Cook has the work in charge, and under his intelligent management the old shaft will be lagged up and sinking will be resumed in a systematic manner. The Jefferson is one of Tintic's most likely prospect properties and needs only good work to bring it to the front.

Some more good rock has been unearthed near Panguitch, some of which assays 55 per cent lead and 36 ounces in silver to the ton. The rock this assay is from was taken from a vein about twenty feet wide, and the piece assayed is from the croppings.—*Salt County Republican*.

WASHINGTON.

Republic Camp.

There is magnificent looking ore taken from the Princess Maude. No one could give any information as to its value.

Manager Harvey states that the Rebate shaft is 70 feet deep. The ledge has been crosscut at the bottom of the shaft, and there are 12 feet of good ore. The average assays are \$10 per ton.

A shaft is being sunk on the D. D. There has been some surface work going on for the past two weeks for the purpose of determining the course of the vein. The property lies west of the San Poil.

The ore in the Surprise gets richer each foot of development. It is rapidly becoming a favorite stock with investors. It is certainly one of the prettiest ledges in the camp, and its location is such that it can scarcely be over-rated.

The water has been removed from the Mark Tapely shaft, and a drift driven about four feet towards the ledge that was recently uncovered on the surface. The rock is hard and therefore slow progress is made. It will take three weeks at the present rate of progress to cut the ledge.

GENERAL NEWS

Jackson Hand-Power Rock Drill.

The Thornton N. Motley Co. of 43 John street, New York City, one of the largest exporting machinery houses in the United States, have just completed a contract with the Jackson Drill & Mfg. Co., of Denver, Colo., whereby they become the sole licensees for the sale and manufacture of the Jackson Hand-Power Rock Drill, throughout the east-

ern United States and all foreign countries. That they have taken hold of the matter in a very energetic manner is evidenced by the fact that they have ordered quite a number of drills from the factory at Denver for the purpose of exporting, twenty-five of the machines being for Mexico alone.

C. L. Berger & Sons, successors to Buff & Berger, the manufacturers of surveying, engineering and astronomical instruments of 9 Province Court, Boston, Mass., have issued a new edition of their catalogue, containing a full description of their latest improvements in the instruments manufactured by them. Attention is particularly invited to improvements in mining transits and new leveling instruments, among which are their hydrographic and new engineer's precise level instruments, pages 104a and 104aad. The high reputation of making the finest and the most accurate instruments in the country is enjoyed by this firm.

MINERAL PRODUCTS OF CALIFORNIA.

State Mineralogist A. S. Cooper, reports the yield and value of mineral substances of the State for 1898 as follows, as per returns received at the State Mining Bureau in answer to inquiries.

Asbestos.....	10 tons	\$ 200
Antimony.....	40 "	1,200
Asphalt.....	25,690 "	482,175
Bituminous Rock	46,836 "	137,575
Borax	8,300 "	1,153,000
Cement	50,000 bbls	150,000
Clay	100,002 M	571,362
Brick Pottery	28,947 tons	33,747
Coal	143,045 "	337,475
Copper	21,543 229 lbs	2,475,163
Gold		15,911,478
Granite	98,369 cu.ft	147,732
Gypsum	3,100 tons	23,600
Lead	655,000 lbs	23,907
Lime	297,860 bbls	254,010
Limestone.....	27,686 tons	24,548
Macadam.....	452,691 "	369,082
Magnesite.....	1,263 "	19,075
Manganese.....	440 "	2,102
Marble.....	8,050 cu.ft	23,594
Mineral Paint....	653 tons	9,698
Mineral Waters...	1,429,809 gals	213,817
Natural Gas.....		74,424
Paving Blocks....	1,144 M	21,725
Platinum.....	300 oz	1,800
Petroleum.....	2,249,088 bbls	2,376,420
Pyrites.....	6,000 tons	30,000
Quicksilver.....	31,092 fl'sk	1,188,626
Rubide	724,674 tons	445,395
Salt	93,421 "	170,855
Sandstone	37,264 cu.ft	46,384
Serpentine	750 cu.ft	3,000
Silver.....		414,055
Slate.....	400 sqn	2,800
Soda.....	7,000 tons	154,000
Sulphur	2 "	50

Total \$27,289,079

The relative rank of the Counties of the State, in point of mineral production is given in the following table. In each case the value given includes that of all mineral substances combined produced in the respective counties for the year. Some counties produce in addition to gold and silver, five, six, or seven other substances, in other counties which yield little or no gold or silver, produce in large quantities, quicksilver, mineral oils, copper, lead, asphalt, structural materials, etc. The figures after each of the counties indicate aggregate value of all mineral products

for the year, including the precious metals. The term "undistributed" includes total values of such substances as are grouped to avoid disclosing private business, as in the case of single operations in a county. In the large and complete tables published by the State Mining Bureau, from which these figures are taken, the amount of value of each substance in said county is set forth. It is therefore necessary in some cases to place the figures in the "undistributed" column.

1 Shasta.....	\$ 3,510,728
2 Nevada.....	2,072,604
3 Amador.....	1,849,846
4 Tuolumne.....	1,757,735
5 Los Angeles.....	1,732,357
6 San Bernardino.....	1,644,152
7 Placer.....	1,535,525
8 Kern.....	1,129,573
9 Calaveras.....	1,024,507
10 Trinity.....	1,010,769
11 Siskiyou.....	769,125
12 San Diego.....	694,418
13 Ventura.....	654,063
14 Napa.....	555,966
15 Butte.....	529,225
16 Mono.....	519,421
17 El Dorado.....	512,300
18 Santa Barbara.....	472,784
19 Alameda.....	443,759
20 Inyo.....	434,766
21 Sierra.....	399,582
22 Plumas.....	369,609
23 Humboldt.....	357,288
24 Mariposa.....	337,411
25 Santa Clara.....	334,848
26 Santa Cruz.....	270,636
27 Riverside.....	247,022
28 San Benito.....	212,585
29 Fresno.....	201,057
30 Yuba.....	166,865
31 Madera.....	147,977
32 Contra Costa.....	141,440
33 Sonoma.....	132,709
34 Sacramento.....	131,438
35 San Francisco.....	129,595
36 Lake.....	102,096
37 San Joaquin.....	91,289
38 San Luis Obispo.....	84,267
39 San Mateo.....	77,000
40 Marin.....	67,800
41 Orange.....	65,600
42 Lassen.....	37,760
43 Stanislaus.....	22,298
44 Solano.....	20,635
45 Monterey.....	19,115
46 Tulare.....	15,900
47 Tehama.....	9,490
48 Del Norte.....	9,057
49 Kings.....	8,450
50 Mendocino.....	3,330
51 Colusa.....	1,093
52 Yolo.....	384
Undistributed.....	219,990
Total.....	\$27,289,079

All the asbestos produced in California in 1898 was from Riverside County, and the antimony all came from Kern. Asphalt was produced in Kern, Santa Barbara and Ventura Counties. Bituminous rock came from Mendocino, San Benito, San Luis Obispo, and Santa Cruz Counties. The borax yield was from San Bernardino and Inyo. Brick clay was utilized in Alameda, Butte, Contra Costa, Fresno, Humboldt, Kern, Kings, Los Angeles, Madera, Marin, Mendocino, Monterey, Orange, Riverside, Sacramento, San Bernardino, San Diego, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Barbara, Santa Clara, Sonoma, Tehama, Tulare, Tuolumne, Shasta and Ventura Cos.

Pottery clay came from Amador, Los An-

geles, Placer, Riverside, and Santa Clara. All the hydraulic cement came from San Bernardino County. Coal was produced in Alameda, Amador, Contra Costa, Orange, Riverside, and San Benito Counties. The copper was mined in Amador, Calaveras, Inyo, Nevada and Shasta Counties. The pyrites were all from Nevada County. Granite was quarried in the counties of Madera, Nevada, Placer, Riverside, Sacramento, San Bernardino, San Diego, Solano, Sonoma, and Tulare. Gypsum came from Fresno, Los Angeles, and San Benito; and lead from Inyo and Mono Counties. Lime and limestone were quarried in El Dorado, Kern, Mono, Riverside, San Bernardino, Santa Cruz, Solano, and Shasta Counties.

The principal macadam quarries are in Alameda, Los Angeles, Marin, Sacramento, San Benito, San Francisco, Santa Clara, Solano, and Sonoma Counties. The magnesite was all from Napa County; and manganese all from Alameda. Marble was quarried in Amador, Inyo, and San Bernardino Counties. Mineral paint was mined in Butte, Nevada, and Stanislaus Counties.

The mineral springs which utilized the waters commercially are in Butte, Colusa, Contra Costa, Fresno, Lake, Monterey, Napa, San Benito, San Diego, San Luis Obispo, Santa Barbara, Santa Clara, Shasta, Siskiyou, Sonoma and Tehama Counties. Natural gas was utilized in Sacramento, San Joaquin, and Santa Barbara Counties.

Paving blocks, or basalt blocks, were quarried in San Bernardino, Solano, and Sonoma Counties. The platinum came mainly from Trinity and Siskiyou Counties. Petroleum was produced in Fresno, Kern, Los Angeles, Orange, Santa Barbara, Santa Clara, and Ventura Counties. Quicksilver came from Lake, Napa, San Benito, San Luis Obispo, Santa Clara, Sonoma, and Trinity Counties. Rubble was quarried in the Counties of Alameda, Humboldt, Madera, Monterey, Sacramento, San Diego, San Luis Obispo, and San Mateo. The salt came from Alameda, Colusa, Riverside, and San Diego Counties. Sandstone was from Alameda, Los Angeles, and Yolo Counties. The serpentine was from Los Angeles; slate from El Dorado; soda from Inyo; and sulphur from Los Angeles Counties.

As far as the "banner" counties are concerned, in the different mineral products, the following is the record for 1898, with the value of the material from the county named. Alameda leads in the production of salt (\$155,812), manganese (\$2,102), and coal (\$176,250). Butte leads in mineral paints (\$3,000), El Dorado in slate (\$2,800), Humboldt in rubble (\$297,276), Inyo in soda (\$154,000), lead (\$21,170), and marble (\$12,000), Kern in antimony (\$1,200), Los Angeles in petroleum (\$1,462,871), brick clays (\$188,386), gypsum (\$18,500), serpentine (\$3,000) and sulphur (\$50). Madera leads in granite (\$49,673), Napa in mineral waters (\$63,000), quicksilver (\$472,972), and magnesite (\$19,075). Nevada County leads in gold (\$2,017,628), and pyrites (\$30,000). Placer County has the most pottery clay (\$12,000), Riverside leads in asbestos (\$200), San Bernardino has the most borax (\$1,120,000), cement (\$150,000), and lime stone (\$6,600).

San Francisco quarries the most macadam (\$129,595), San Joaquin utilizes the most natural gas (\$57,289), Santa Barbara has the most extensive asphalt output (\$351,400), Santa Cruz produces the most lime (\$151,000), and bituminous rock (\$113,898). The bulk of the copper comes from Shasta County (\$2,

465,830), and this county also leads in silver product (\$171,768).

The most paving blocks are from Sonoma County (\$13,310). It is to be noted that only one county has the lead on five things—Los Angeles. Four lead on three substances—Alameda, Inyo, Napa and San Bernardino; and the counties of Nevada, Shasta and Santa Cruz lead in two products. The three counties named only have the lead in one substance each.

In the year 1897, the total value of the state was \$25,142,441, and in 1898 the total value was \$27,289,079, so that the increase for the year is \$2,146,638.

The figures given show that in the past year the total value of metallic substances, including precious metals, was \$20,023,034; of non-metallic substances, \$2,102,072; of hydrocarbons and gases \$3,070,594; and of structural materials, \$2,093,379; total, \$27,289,079.

The annual meeting of the Joseph Dixon Crucible Company was held at the company's main office, Jersey City, N. J., Monday, April 17, and out of a possible vote of 7,345 shares, there were 7069 shares voted for the re-election of the old board, consisting of Edward F. C. Young, John A. Walker, Daniel T. Hoag, Richard Butler, William Murray, Alexander T. McGill and Joseph D. Bedle. President E. F. C. Young, Vice Pres. and Treasurer John A. Walker, Secretary George E. Long were re-elected by the directors. Judge Joseph D. Bedle was also re-elected as counsel.

PERSONAL NEWS ITEMS

Wm. JOHNSON, of New York City, has lately purchased Mr. THOMPSON's interest in the Karma mine, located about 4½ miles southwest of Mojave, Cal., for \$10,000. This mine has produced and shipped from 18 to 20 carloads of ore, valued at \$20 per ton net. The ore body improves as the mine is developed, and the mine in time will stand up to the front with numerous other Southern California properties. There is a shaft on the property about 120 feet deep which is connected with a tunnel 130 feet in length at a depth of 60 feet.

S. J. GRAHAM, of McKinney, B. C., left Spokane, Wash., a few days ago for an extended trip through the east.

R. H. CHANNING, late manager of the Sparta mine near Sparta, Minn., has resigned to take charge of the Highland Boy copper mine at Bingham, Utah.

B. M. SWINGER, of the Keystone Mining Co., near Sylvanite, Mont., spent a few days last week in Spokane, Wash.

J. H. LOHMEYER, vice-president of the Mameya Mining and Milling Co., Fabrum, Nev., has left for the east and will spend a few days in Pittsburg, Pa., at which place the company's general office is located.

J. H. DELANEY, secretary of the Baltimore and Deadwood Company, is in Deadwood, S. Dak.

J. PARKER CARDS has been appointed superintendent of the Treadwell mines, Douglas Island, Alaska. He is to succeed ROBERT DURCAN, Jr.

HIRAM DOTSON, a well-known mining man of Black Hills, S. Dak., has lately left for Chicago, Ill., to work up a large mining deal.

SAM COINMAN, of Leadville, Colo., leaves in a few days for South America, where he will represent a large placer mining company.

J. D. HAGUE, mining expert, has returned to New York City, after a short stay in the Black Hills, S. Dak.

T. M. JOHNSON is in Deadwood, S. Dak., examining some mining prospects for Denver parties.

DR. F. WM. INHR, of Chicago, Ill., and R. J. WALTER, of Denver, Colo., have been in Deadwood, S. Dak., for the past week, examining the phonolite belts near Deadwood and Lead.

GAVIN JOHNSON, of Grangeville, Idaho, spent last week in Spokane, Wash., on business connected with the Dixie camp, in which he is interested.

THE MARKETS.

All quotations, financial reports and of statistical figures given under this head are New York quotations, unless otherwise stated in each item. These figures are carefully revised each issue, and constitute a very accurate compilation of statistical matter.

NEW YORK March 14, 1899.

The following are the Silver, Copper and Lead quotations for the last two weeks

	SILVER	COPPER	LEAD
May 1	12 1/2	19 1/2	1 10
" 2	12 1/2	19 1/2	1 10
" 3	12 1/2	19 1/2	1 10
" 4	12 1/2	19 1/2	1 10
" 5	12 1/2	19 1/2	1 10
" 6	12 1/2	19 1/2	1 10
" 7	12 1/2	19 1/2	1 10
" 8	12 1/2	19 1/2	1 10
" 9	12 1/2	19 1/2	1 10
" 10	12 1/2	19 1/2	1 10
" 11	12 1/2	19 1/2	1 10
" 12	12 1/2	19 1/2	1 10

SILVER.

The silver market has remained steady and dull this week, but closes with firmer tendency on the prospect of French tenders next week.

The small amount of dollars received in the first quarter of this year is noteworthy. It is known that the China market is not in favor of a movement this way and the holders in Mexico have been able to do better at home than by shipping to China. There has been a large increase in both gold and silver bullion.

COPPER.

Copper continues in good demand. Lake, which it is difficult to get for prompt delivery has improved in value, it is said that as high as 19c has been offered. June, July and August, however is quoted at 18c. Prices for electrolytic copper remain unchanged at 17 cts. For cakes, wirebars or ingots and cath-

odes 10 1/2c. Casting copper is nominal at 16 1/2 and 17c.

LEAD.

Lead remains dull. There is as yet no improvement in the demand as the policy of the American Smelting & Refining Co. becomes clearly defined. In the mean time consumers appear to be inclined to await developments. We quote Lead at \$4.30. The foreign market is still firm at £14.10s for Spanish, and £14.12s.6d. for English.

SPELTER.

Spelter remains firm at \$6.20@6.25 St. Louis, and \$6.50@6.60 New York. The foreign market is very steady, the latest quotations received quote spelter at £27.18s.0d. for ordinaries and £28.3s.9d. for specials.

ANTIMONY.

The prices for Antimony remain unchanged at 10@10 1/2c for Cookson's, 9 1/2c for Hallett's, C., U. S. Star and Hungarians.

NICKEL.

Nickel continues unchanged and no alternation of prices can be reported. We quote for ton lots 33@36c per lb., and for smaller orders 37@38c. London prices are 14@16d. per lb., according to size of order.

TIN.

The fluctuations of the market have been very wide going as high 25 1/2c, and as low as 24 1/2c, but at last report the values have again improved the closing price being about 25c. The foreign market closed at £113 for spot and £119.12s.6d. for three months.

PLATINUM.

The demand for Platinum is active and prices continue high. We quote for New York \$15.50 per ounce for large lots and \$16@17 for small orders; London is 62@64 can ounce.

POTASSIUM CYANIDE.

Purified, 98@99 per cent., in cases of 120 lb. at 32c. per lb. in 5, 10, 25 and 50 lb tins at an advance.

QUICKSILVER.

New York price remains at \$42 per flask. The London price is £8 5s, with £8 1s. 3d named for second hands.

BORAX.

F. o. b., San Francisco: No. 1, 70 per cent. nitro-glycerine per lb. in carload lots, 15 1/2c; less than one ton, 17 1/2c. No. 1* 60 per cent., carload lots, 13 1/2c; less than one ton, 15 1/2c. No. 1** 60 percent carload lots, 11 1/2c; less than one ton, 13 1/2c. No. 2, 40 per cent., carload lots, 10c; less than one ton, 12c. No. 2*, 35 per cent., carload lots, 9 1/2c; less than one ton, 11 1/2c. No. 2** 30 percent., carload lots, 9c, less than one ton, 11c. Black blasting powder in carload lots, minimum car, 728 kegs, \$1.50 per keg; less car lots, \$2 per keg.

COKE.

But little change, if any, is noticeable in the condition of the coke trade, which is quite steady and featureless otherwise.

IN CAR LOTS, ST. LOUIS.

Connellsville idv coke 72-hr. fry...\$1.85
New River...\$4.00 Pocahontas...2.90
Crushed...4.85
Gas works coke, lump, per bushel 10

BORAX.

The San Francisco market in Borax is firm with a good demand.

The market is quoted as follows.
Refined, in carload lots, in barrels...7 1/2
Refined, in carload lots in sacks...7
Powdered, in car lots...7 1/2
Concentrated, in car lots...6 1/2

THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum:
No. 1, 99 per cent. ingots, per lb...35@37c
No. 2, 99 per cent. ingots, per lb...34@36c
Rolled sheets, per lb...38c up

Aluminum.—Nickel, per lb. 33@35c
Alum bronze, per lb. 35@37c
Bismuth, per lb. 44 1/2c
Phosphorus, per lb. 4 1/2c
Tungsten, per lb. 1 1/2c
Ferro-tungsten, 50 per cent. 1 1/2c
Variations in price depend chiefly on the size of the order.

CHEMICALS

A good and steady demand is reported and prices are firm. Imports have been light, while receipts of domestic goods included 574 bbls. and 1,415 sacks of soda ash, and 77 casks of potash.

SODA.

Quotations for caustic soda, domestic, high test, \$1.37 1/2@1.42 1/2 per 100 lbs. f. o. b. at works \$1.50@1.65 delivered

ALKALI.

Domestic, 60@65c. f. o. b. works; 70@71.55@71.65 delivered; foreign, \$1.60@1.70

CARBONATED SODA ASH.

58 per cent., 90c and 95c per 100 lbs. basis 48 per cent.

SODA CRATE OF SODA

American, \$1.12 1/2 @ \$1.25, English, \$2.12 1/2 @ \$2.25 per 100 lbs. according to brand and style of package

SAL SODA.

For domestic 50c. per 100 lbs. less the usual discounts English, 60@62 1/2c per 100 lbs. Concentrated sal-soda, \$1.60 @ \$1.70 per 100 lbs.

CHLORATE OF POTASH

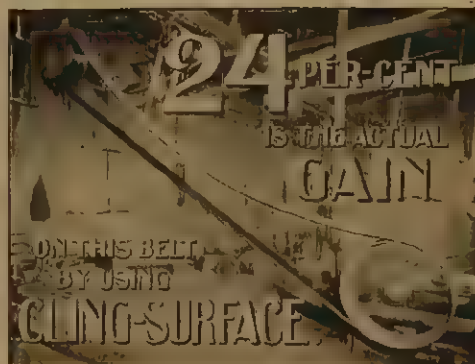
Chlorate of potash is quoted at \$9.00 @ \$9.25 for crystals and \$9.25 @ \$9.50 for powdered per 100 lbs.

CHLORIDE OF LIME

English prime brands \$1.60@1.70, American, \$1.70@1.80, Continental F., \$1.50@1.60 per 100 lbs.

ACIDS.

Consumption is satisfactory and deliveries on contract are moving more



BELTS WILL SLIP — BUT

CLING-SURFACE

WILL STOP IT PERMANENTLY.

CLING-SURFACE is to be applied to the inside of a belt.

It has been so universally satisfactory for the past three years that we can safely guarantee that its use will not only stop all slipping, but that the belts will become soft and pliable, yet firm, if of leather, they will become as soft as calf skin, and also absolutely water-proof; and furthermore we guarantee that the belts can be run slack, and that the power will be increased so much that in a fair-sized plant the cost of the sample can will be earned monthly.

This applies to all belts, leather, cotton, rubber or a rope drive, whether new, old, or oily. We will send you a sample can for trial; or, if you prefer, we will advise you further as to its nature.

CLING-SURFACE MFG. CO., 167-172 VIRGINIA ST., BUFFALO, N. Y.

— REPRESENTED IN SALT LAKE BY THE UTAH RUBBER & MFG. CO. —

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We asked a man the other day what he thought of our pumps.

"Well," said he, "I've used this pump for twenty years, and it's better than most pumps yet."

The best material, workmanship and patented construction—that's why our pumps wear.

Are you going to buy—Write us for full information and catalogue. All free for the asking.

W. T. GARRATT & CO.,
Pump, Bell, Brass and Machine Works,
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MINERALS WANTED +



Gold and Silver Quartz Specimens, Crystals, Opals, Turquoise, etc., etc.

Buy in Any Quantities—Pay good prices—Cash

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The Pulsometer Steam Pump

"THE MINER'S FRIEND"

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RECENT IMPORTANT IMPROVEMENTS

The Handiest, Simplest and Most Efficient Steam Pump for General Mining, Quarrying, Railroad, Irrigation, Drainage, Coal Washing, Tank-Filling and for Pumping Back Liquids heavily impregnated with sediment. Muddy or gritty liquids handled without injury to the Pump.

AGENTS

PARK & LACY CO., A. M. HOLTER Bldg. Co., MITCHELL-Lewis & STAYER Co.
San Francisco, Cal. Helena, Mont. Portland, Oregon.

CATALOGUE ON APPLICATION
CORRESPONDENCE SOLICITED

Pulsometer Steam Pump Co.

133 Greenwich Street, New York City

asily. The blue vitrol export demand continues good, while prices are practically unchanged.

BRIMSTONE.

Most buyers of it at this port put the 2000 tons at hand buy all been contracted for and will go into consumption. Spot best unmixed secured are therefore unchanged at \$22.00/22.50 per ton, shipments \$21.50/22. Thids are about \$2 less.

NITRATE OF SODA.

The spot market is firmer at \$1.00/1.07 1/2 per 100 lbs., owing to the very few arrivals of cargoes.

FINANCIAL NOTES.

Average Prices of Metals

in New York per 100 lbs. from January 1st, 1899.

Month	Copper	Tin	Lead	Spelter
January	14 75	22.48	4.18	5.34
February	18.50	24.20	4.49	6.28
March	18 54	24 50	4 12	6 31
April		24 50	4 12	6 31
May		24 50	4 12	6 31
June		24 50	4 12	6 31
July		24 50	4 12	6 31
August		24 50	4 12	6 31
September		24 50	4 12	6 31
October		24 50	4 12	6 31
November		24 50	4 12	6 31
December		24 50	4 12	6 31
Average				

Average Monthly Prices of Silver,

in New York per ounce Troy, from January 1st, 1899, and for the years 1898 and 1899.

Month	1899	1898	1897
January	66.36	66.77	64.79
February	66.12	66.07	64.67
March	66.61	64.90	64.66
April	66.13	64.62	64.86
May		64.98	64.12
June		64.61	64.10
July		64.09	64.61
August		64.54	64.10
September		66.58	65.24
October		66.12	67.27
November		66.61	67.14
December		66.42	68.01
Year		66.26	69.70

The statement of the United States Treasury, on Thursday, May 31, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week.

	May 3	Changes.
Gold	\$164,421,731	I \$1,219,458
Silver	4,712,390	D. 192,450
Legal Tender Notes	1,171,000	F. 1,171,000
Treasury Notes, etc.	773,044	D. 35,555
Totals	\$164,444,033	I \$1,515,973

Treasury deposits with national banks amounted to \$86,314,113, a decrease of \$1,301,488 during this week.

Gold and Silver Exports and Imports.

At all United States ports, February 1899, and year from January 1st, 1898 and 1899.

	1898	1899
Gold—		
Exports	\$1,039,412	\$154,840
Imports	6,167,681	5,148,906
Excess	\$5,128,269	\$4,994,066
Silver—		
Exports	15,288,921	4,812,122
Imports	2,085,914	1,474,712
Excess	\$13,203,007	\$3,337,410
YEAR.		
Gold—	1898	1899
Exports	\$1,039,412	\$154,840
Imports	6,167,681	5,148,906
Excess	\$5,128,269	\$4,994,066
Silver—		
Exports	\$8,061,861	\$9,941,066
Imports	4,621,056	4,019,745
Excess	\$3,440,805	\$5,921,321

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

WANTS

Advertisements of this class containing not more than five lines will be accepted for not over one month, and will be charged at the rate of \$1.00 per line. Advertisements not accepted for less than one month.

COPPER MINE. State full particulars in regard to development work to location, distance from water, price of fuel, character of ore and returns from shipments. Must have at least 1500 feet of development work. Send all information possible. Address,

JAMES HOWARD,
Care Journal Office,
150 Nassau St., New York, N. Y.

GOLD mine anywhere in United States, must have at least 1000 feet of development; where coal is not over \$6.00 per ton or wood \$4.00 per cord delivered plenty of water, no objection to low grade ore if profit can be made by having to be placed to amalgamate and concentrate, want 6 months working band, no property considered unless owners are prepared to deposit a *typed* check to be forfeited for expenses of engineer if property is not as represented. Address with price and full particulars,

J. E. M., Journal Office,
150 Nassau Street,
New York, N. Y.

Watch this space for
Want Ad next issue

METALLURGIST and Chemist, ten years experience, assaying, ore buying and smelting, at present engaged with large pyritic mining company in Mexico, desires engagement in the States or British Columbia. Address—W. H. R.

EXPERIENCED men for repair, steam, electrical and mining machinery. Knowledge of repairing and office work. Address—W. H. R.

FOR SALE!

TWO THIRDS interest in a developed gold mine in Dona Ana County, N. M. See Ad page 11.

A GROUP of 4 Copper claims in Northern Arizona. By-product of gold and silver recently discovered and show great promise will sell at a great bargain. R. R. HOTCHKISS, DRURY, ARIZ.

TRIMAIN Two Stamp Steam Mill at Tucson, Ariz. 12 H. P. per hour and very thing complete, set up ready for work in excellent condition, used less than six months. Address DRIDGO, MINING MACHINERY CO. Kansas City, Mo.

ANTIMONY BISMUTH PROSPECTORS looking for better luck in a new and unexplored territory, will be well pleased to learn that a party has been discovered in the State of New Mexico. Address—J. E. M., Journal Office, 150 Nassau Street, New York, N. Y.

A VERY valuable, extensive Lead Mining property in Southwest Arizona. A party has been discovered in the State of New Mexico. Address—J. E. M., Journal Office, 150 Nassau Street, New York, N. Y.

FOR SALE AT A BARGAIN. A 60-TON copper smelting plant, consisting of two furnaces and a steam engine, seamless liner. Plant is complete in every detail. Also an extensive stock of machinery, tools, new or second hand, and a large stock of material located immediately adjacent to railroad. Inquire of CARPENTER, WORTHEN & LOW, dealers in Mining and Mill Supplies, Tucson, A. T.

The Cleveland Mining and Stock Exchange Co.

New England Building, Cleveland, Ohio.

Reliable Information Bureau for Miners and Investors to obtain **FACTS** Regarding Capital and Mines. Stocks and Mines listed. Send for prospectus.

Morgan-Watson Mining and Construction Co.

809-810 New England Building, Cleveland, Ohio.

MINES AND STOCKS We Buy, Sell, Lease and Bond Mines of all kinds. We Buy, Sell, and Negotiate sales of mining and other stocks. We furnish machinery to work good mines under special arrangement. We furnish Capital to develop mines.

JAMES IRVING & CO. REFINERS ASSAYERS

Largest and most complete establishment in Southern California Cyanide and Mill Test.



Mint Prices paid for Gold and Silver Bullion. Returns made within four hours after receipt.

128 N. Main Street (Old Location.) Los Angeles, Cal.

ALL THE MINING CAMPS OF UTAH AND COLORADO ARE LOCATED ON OR REACHED BY

The Rio Grande Western Ry.

THE SHORTEST, QUICKEST AND MOST DIRECT ROUTE TO

MERCUR AND CRIPPLE CREEK

P. R. WEDLBICH, GENERAL PASSENGER AGENT.

Salt Lake City, Utah

ADOLF FRESE

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Barometers, Thermometers, Field Glasses, Microscopes and Accessories. Repairing Promptly Done.

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Necktie Pin Outfit

by mail, prepaid \$1.00. Unlike all others. The smallest, neatest and most durable ever placed on the market. Liberal discounts to jobbers. William Roche, inventor and sole manufacturer, 239 Greenwich St., New York U. S. A.

ORE TESTING

Complete mill for testing ores on practical scale by all processes to determine the best process adapted to treating any ore submitted. Processes in use investigated to overcome unnecessary losses, etc.

RICKETTS & BANKS,

Metallurgists & Chemists

No 101 JOHN STREET,

NEW YORK CITY

See Mining Stock Quotations Page 21

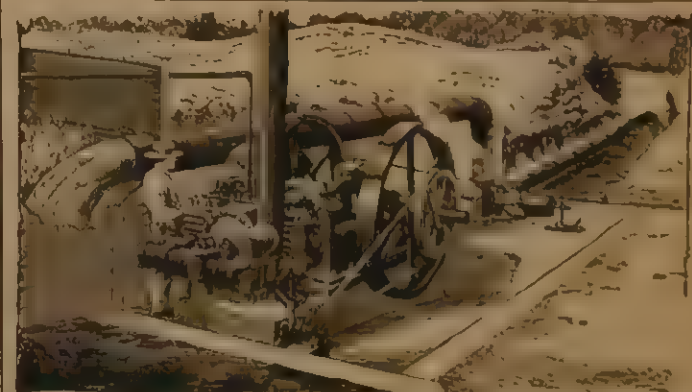
John Wigmore & Sons Co.

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Mine and Mill Supplies, Iron and Steel

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LOS ANGELES, CAL.



LARGEST GASOLINE PUMPING PLANT IN THE WORLD

The illustration shows the gigantic pumping plant recently built by the Hercules Gas Engine Works at the Packer Ranch, Colusa Co. 80 h. p. Hercules Engine pumping 7200 gallons a minute 27 feet high. Burns Gasoline or Distillate oil. Cheapest power known. Gas, Gasoline and Oil Engines, 2 to 800 h. p. Send for Catalogue. HERCULES GAS ENGINE WORKS, 220 Bay St., San Francisco.

MINING STOCK QUOTATIONS

BOSTON

Adventure	13 00	Mesa	14 55
Aloua	11 82 1/2	Merced	9 00
Aloua	65 00	Aloua	33 50
Archa	70 00	Napa	17 00
Arnold	9 75	Old Colony M	12 00
Atlantic	34 50	Old Dominion	5 50
Batic	30 50	Oreana	34 00
Bingham	13 75	Parrott	68 00
Bonanza	1 87 1/2	Pioneer	2 50
Boston & Mont	383 00	Quincy	185 00
Breco	2 00	Rhode Island	12 50
Butte & Boston	100 00	Santa Fe	16 00
Calumet & He	1870 00	Santa Isabel	12 25
Catalpa	35	Yankee	230 00
Centennial	41 50	Tecumseh	7 50
Cochit	14 00	Tri-Mountain	12 25
Copper Range	45 00	Victor	47 50
Crecent	30	Utah Mining	47 50
Dominion Pref	116 50	Washington	4 00
Franklin	26 00	Winona	16 50
Gold Dredging	34 50	Wolverine	45 50
Humboldt	8 50	Wyandotte	8 00
Isle Royale	71 00		

ROSSLAND, BRITISH COLUMBIA.

brandt & G's Crk	30	Kootenay Gold P.	—
Brit. Amer. Cor.	4 00	Lerwick	—
Brit. Col. Cor.	5 50	Lily May	—
Canad. Gold Fields	10	Lon & Van M D Co	—
Carrhoo	1 75	London R C G I	8 50
Commander	—	Monte Lila	—
Deer Park	—	New Gold Fields B.C.	25
Dundee	35	Novelty	—
Evening Star	88	Queen Res Prop	3 00
Fort	—	Rambler Con	35
Gold Fields of B.C.	25	Red Mount. View	—
Hattie Brown	—	Reco	—
Hall Mines	3 50	Silver Nell	—
Homestake	06	Silver Queen	15
Iron Horse	16	St. Elmo	—
Iron Mask	—	Shenon Star	2 00
Josie	—	Vic Trm Dev. Co.	—
Jumbo	—	Waverly Mines	75
Kenneth	—	War Eagle Con	4 50
Keystone	—	White Bear	10

SAN FRANCISCO.

Alta Con	12	Mexican	70
Andes	17	Occidental	52
Belcher	40	Ophir	1 20
Best & Belcher	57	Overman	18
Bullion	10	Ontario	3 50
California	40	Plymouth	30
Challenge	13	Potosi	30
Chollar	35	Quicksilver	1 25
Confidence	80	Quicksilver pref'd	40
Con. Cal. & Va.	1 85	Savage	30
Crown Point	29	Seg. Belcher	30
Deadwood	45	Sierra Nevada	1 15
Gould & Curry	43	Silver Hill	10

Hale & Norcross	35	Standard	1 75
Homestake	50 00	Union Con	55
Iron Silver	—	Yellow Jacket	42
Justice	—		

COLORADO SPRINGS STOCKS

Acacia	68 1/2	Hayden	51 1/2
Alamo	0 1/2	Ingham Con	—
Altamont	0 1/2	Isabella	—
American Con	0 1/2	Jack Pot	—
Anaconda	52 1/2	Kimberly	—
Aols	0 1/2	Lexington	—
Arctida Cons	3 1/2	Magnet Rock	—
Argentinum Junata	3 1/2	Minia	—
Bankers	0 1/2	Montreal	—
Banner	0 1/2	Mountain Beauty	—
Bob Lee	0 1/2	Mollie Gibson	—
Crede & C Co.	0 1/2	Moon Anchor	—
Cripple Crk Con	0 1/2	Mount Rosa	—
Dante	1 1/2	New Haven	—
Des Mines	0 1/2	Ore	—
Elkton Con	9 1/2	Orphan Bell	—
El Paso	20	Pharmacist	—
Emma Almee	0 08	Pilgrim	—
Fanny R.	48	Portland	—
Favorite	0 1/2	Pr Albert	—
Findley	14 1/2	Rattler	—
Flower of the W	0 1/2	Specimen	—
Golden Piece	—	Theresa	—
Gold & Globe	0 1/2	Trachyte	—
Gold King	1 00	Union Gold	—
Gould	1 20	Vindicator	—
Granite Hill	0 1/2	Work	—

SALT LAKE CITY

Alice	50	Joe Bowers Ex.	09
Ajax	1 44	La Roca	76
Alliance	10	Little Pittsburg	09 1/2
Anchor	76	Lower Mammoth	73 1/2
Buckeye	0 3 1/2	Malvern	12
Bullion Rock	5 50	Mammoth	1 32
Cent. Eureka	5 00	Mercur	7 20
Chloride Polat.	90	Morgan	—
Daisy	33	Northern Light	75 1/2
Dalton	0 2 1/2	Omaha	30
Dalton & Lark	10	Ontario	7 87
Daly	1 18	Rich. Anaconda	10
Daly West	8 00	Sacramento	45 1/2
Dexter	2 5 1/2	Shower Con	45
Eagle	0 8 1/2	Silver King	40 00
Eagle & Blue Bell	58	Star Consolidated	1 09 1/2
Four Aces	31	Sunbeam	53
Galena	40 1/2	Sunshine	93
Geyser-Marion	75	Swansea	4 25
Golden Eagle	0 5 1/2	So Swansea	1 29
Grand Central	7 35	Tetco	05 1/2
Homestake	11	Utah	70
Horn Silver	1 50	Valco	85
Ingot	25	West M'n P'Co	50
Joe Bowers	16 1/2	Young America	—

NEW YORK.

Adams Con	15	Isabella	91
Alamo	08	Iron Silver	80
Alice	50	Jefferson	35
Allian	10	Junior Match	05 1/2
Anaconda	48 25	Justine	02 1/2
Anaconda Gold	58 1/2	King & Pemb	18
Anchuria	00	Leads He Cons	10
Argentinum Junata	26	Little Chief	19
Bell	38	Meatman	65
Best & Belcher	50	Mollie Gibson	25
Burt Gold	10	Mt. Rosa	25
Breece	1 00	Occidental	25
Brunswick	25	Ontario	7 50
Chollar	25	Ophir	1 00
Chrysolite	12	Pharmacist	07
Comstock Tunnel	05	Phoenix	08
Comstock Rocks	05	Plymouth	08
Comstock Script	05	Portland	2 00
Con. Cal. & Va.	1 85	Potosi	25
Cr. & Cr. Creek	07	Quicksilver	1 35
Crecent	15	Quicksilver p'd	13 00
Crown Point	24	Rocky Mountain	02
Cripple Creek Con	00 1/2	San Juan Star	32
Deadwood	80	Savage	35
Elkton Cons.	55	Sierra Nevada	1 00
Enterprise	30	Small Hope	1 35
Garfield Cons.	12 1/2	Specimen	04
Good Samaritan	05 1/2	Standard	2 50
Gold Coin C. Crk	2 00	Syndicate	10
Gold Coin Gilpin	35	Union Con.	40
Golden Piece	35	Union	15
Gould & Curry	38	Utah Con	21
Gregory Gold	09 1/2	Union Gold	—
Hale & Norcross	33	Vindicator	—
High Five	22	Work	—
Homestake	55 00	Yellow Jacket	41
Horn Silver	1 40		

SPOKANE, WASHINGTON.

Ben Hur	28	Number Six	12
Black Tail	17	Palo Alto	14 1/2
Bryan and Sewall	05	Pearl	12
Butte and Boston	17 1/2	Peachontias	04
Eardman	63	Princeton Mude	18
Eureka First Th't	05	Quill	18
Eureka Queen	08 1/2	Rebate	19
Golden Harvest	07 1/2	Republic	3 75
Gold Leaf	35	Republic Big Six	08 1/2
Iron Monitor	09 1/2	Republic No. 2	08 1/2
Jin Blaine	57	San Poli	85
Liberty	30	Surprise	12
Lone Pine Cons	42 1/2	Toughtful	02
Merrimac	08 1/2	Tom Thumb	22
Monroe	08	Trade Dollar	12
Morning Glory	20	Treasury	05
Mountain Lion	57 1/2		

DENVER STOCK REPORT.

Acma	003	Keystone	—
Archona Leland	50	Little	—
Anaconda	51 00	Maton	40
Arcadia	63	Mollie Gibson	25
Argentinum Junata	35	Moon Anchor	—
Banner	—	Mt. Rosa	—

Bob Lee	37	Old Gold	00 1/2
Butte	50	Panama	—
El Paso	20	Pilgrim	00 1/2
Enterprise	07	Pine Creek	10 1/2
Fanny R.	64	Portland	—
Garfield House	12 1/2	Prince Albert	04 1/2
Geo. Washington	003	Republic	05
Golden Eagle	72	Sacramento	—
Gilpin	2 00	Sierra Nevada	25
Golden Piece	005	Tamarrack	00 1/2
Isabella	91	Union Gold	21
Iron Glad	65	Virginia M	01 1/2
Jack Pot	42	Wheeler Cons	007
		Work	19 1/2

MEXICO

Name of Company	State	Price
Amiated y Concordia	Hidalgo	29
Angustia	Guajalato	390
Arcevalo y Anexas	Hidalgo	200
Arcevalo y Anexas	Zacatecas	80
Barradon y Cabras	Durango	40
Bartolome de Medina	Hidalgo	30
Cabrera y An	Zacatecas	15
Candelaria de Pinos	Hidalgo	85
Capuaya	Durango	80
Carmen	Hidalgo	500
Cinco Senores y An	Guajalato	350
Concepcion y Anexas	S. Luis Potosi	100
Coronas	Mexico	75
El Oro	Guajalato	30
El Oro, pref.	Guajalato	30
Rapazana y An	Mexico	1,730
Glancia	Chihuahua	50
Guadalupe	Guajalato	230
Luz de Borda Avila	Michoacan	50
Luz de Borda Avila	Michoacan	70
Luz de Maravillas	Hidalgo	280
Pabe lon	Zacatecas	70
Palma de Bomb.	Durango	2,000
Puro co	Hidalgo	1,010
Rafael y Anexas	Hidalgo	750
Real del Monte	Durango	70
Restauradora	Durango	10
Rosario y Anexas	Durango	10
San Francisco	Hidalgo	190
San Rafael adado	Hidalgo	70
San Rafael del Oro	S. Luis Potosi	720
Ste. Maria de la Paz	Hidalgo	350
Soleidad	Hidalgo	230
Sorpres	Guajalato	125
Trinidad Avindor	Guajalato	190
Trinidad Avindor	Puebla	75
Tlaxiango	Hidalgo	380
Union Harieda	Guajalato	85
Zona Min de Paz	Guajalato	85

NOTE—The above Mexican stocks are figured on the basis of Mexican silver



Krogh Manufacturing Company

Successor to San Francisco Tool Co.'s Machine & M'g Dept.

MANUFACTURERS OF AND DEALERS IN

MINING AND PUMPING MACHINERY,

COMPRISING

Krogh 2-Stamp Tripple-Discharge Quartz Mill, of Latest improved pattern, Rock Breakers, Ore Feeders, Concentrators, Engines and Boilers, Hoisting Rigs to be operated by Horse, Steam Power or any other motor; Ore Cars and Ore Buckets, Corals and Jack-heads, Pumps, Triple-Acting Pumps, Centrifugal Sand and Gravel Pumps, Wooden Tanks and Pumps for the Cyanide Process, Pipe and Gate Valves, Link Chain Elevators for elevating and conveying all kinds of material. Estimates as to cost of machinery and its erection furnished upon application. Write for Catalogue and Prices.

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51 Beale St. and 9 to 17 Stevenson St.,

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The Southern California Lumber Co.,

Stimson Bk., Los Angeles, Cal.,

Chas. Wier Manager, sells

LUMBER

At Wholesale Prices

Mining Timbers a Specialty

Write for Prices

FROM CRIPPLE CREEK

AIR COMPRESSORS,
ROCK DRILLS,
Stone Channelers,
The Pohle Air Lift Pump,
Coal Cutters,

THE INGERSOLL-SERGEANT DRILL COMPANY, HAVEMEYER BUILD'G
PARKE & LACY CO., AGENTS, SAN FRANCISCO, CAL. NEW YORK

New Catalogue No. 31

New Catalogue No. 41

Pamphlet No. 100

Catalogue No. 72

Special.

AMES F. BURNS, Pres't. JOHN HARRAN, Gen Mgr
FRANK O. BROWN, Sec'y and Treas.

THE PORTLAND GOLD MINING CO.,

(Stock Transfer Office, Colorado Springs.)
Mines at Victor, Colorado.

COLORADO SPRINGS, COLO., May 19, 1904.

The Ingersoll-Sergeant Drill Co.,
Gentlemen:—We bought two years ago one of the largest

size of the straight line type of Ingersoll-Sergeant Pluton Inlet Compressor.

This was found to be too small for our needs about a year ago and we purchased of you a Duplex Corliss machine

18" x 18 1/2" x 42".

This was set in place in our shaft house in the Cripple Creek District, 10,000 feet above the level of the sea, and has been running continuously ever since, and at times over ten 3/4" holes per drill. The steam cylinders were connected to an independent jet condenser, for which we are using the mine water, and the resultant economy of operation is very noticeable.

The operation of this Compressor is as near perfect as that of any machine we have ever seen, and this type is well worth the extra cost on account of the great permanent economy in operation.

Our mine is equipped exclusively with your drills and we have only the highest words of praise to give them.

Yours very truly, The Portland Gold Mining Co.,
Jas. A. Burns, President

INCORPORATED MINES PAYING DIVIDENDS.

	NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of Last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Minerals Produced
1	Aetna Cons.	California.	100,000	\$ 500,000	\$ 5	\$ 10	Apr 1899	\$ 170,000	G
2	Alaska, Trendwell	Alaska.	200,000	6,000,000	25	37½	Jan 1899	3,996,000	G
3	Alaska Mexican.	Alaska.	200,000	1,000,000	5	10	Jan 1899	386,031	G
4	Alcoa	Montana.	400,000	10,000,000	25	05	April 1898	1,075,000	G, S, I
5	Anaconda	Montana.	1,200,000	30,000,000	25	1 25	May 1899	9,750,000	G
6	Anchorage Island	Colorado.	600,000	600,000	1	03	Apr 1899	198,000	G
7	American Gold	Colorado.	300,000	3,000,000	10	09	Mar 1899	407,000	G, S, I
8	Associated	Colorado.	1,250,000	1,250,000	1	01	Dec 1898	72,000	G
9	Bald Butte	Montana.	250,000	250,000	1	03	Mar 1899	679,848	G, C, S
10	Big Six	Colorado.	600,000	600,000	1	00½	May 1898	15,000	G, S
11	Boston & California	California.	600,000	600,000	1	00	March 1899	38,000	
12	Boston and Colorado Smelting	Colorado.	15,000	750,000	50	5 00	Apr 1899	376,000	
13	Boston & Montana	Montana.	150,000	3,750,000	25	5 00	Feb 1899	9,875,000	G, C, S
14	Breaco	Colorado.	200,000	5,000,000	25	05	Mar 1899	40,000	I
15	Bullion Beck and Champion	Utah.	100,000	1,000,000	10	10	Apr 1899	2,358,400	G, S
16	Bunker Hill and Sullivan	Idaho.	300,000	3,000,000	10	07	Apr 1899	648,000	S, L
17	Cariboo	British Col.	800,000	800,000	1	01½	Feb 1899	248,985	G
18	Calumet & Hecla	Michigan.	10,000	2,600,000	25	10 00	Mar 1899	60,850,000	G
19	Centennial Eureka	Utah.	30,000	1,600,000	50	50	Apr 1899	2,085,000	S, L
20	Central Lead	Missouri.	10,000	1,000,000	100	50	Apr 1899	102,000	I
21	Champion	California.	34,000	340,000	10	25	April 1898	296,200	G
22	Charleston	S. Carolina.	10,000	1,000,000	100	1 50	Dec 1898	180,000	
23	Colorado Smelting	Montana.	100,000	1,000,000	10	1 00	Jan 1899	1,945,000	G, S, I
24	Consolidated Tiger and Poorman	Idaho.	1,000,000	1,000,000	1	02	Dec 1898	20,000	G, S
25	Oreston Leasing	Colorado.	1,000,000	1,000,000	1	01	Dec 1898	54,000	
26	Crowned King	Arizona.	600,000	6,000,000	10	02	Dec 1898	232,000	G, S, I
27	Deo Run	Missouri.	5,000	500,000	100	50	Apr 1899	70,000	L
28	Elkton Consolidated	Colorado.	1,250,000	1,250,000	1	01½	Nov 1898	668,981	G, S
29	Empire State	Idaho.	75,000	750,000	10	20	Apr 1899	126,233	
30	Enterprise	Colorado.	500,000	500,000	1	05	Sept 1898	900,000	S, L
31	Farris-Haggerty	Wyoming.	1,000,000	1,000,000	1	00½	Mar 1899	5,000	C, G, S
32	Gayser-Marion	Utah.	800,000	1,600,000	5	02	Sept 1898	98,000	G
33	Gold Coin of Victor	Colorado.	1,000,000	1,000,000	1	01	Mar 1899	180,000	G
34	Gold King	Colorado.	1,000,000	1,000,000	1	01	Feb 1899	10,000	G
35	Golden Cycle	Colorado.	200,000	1,000,000	5	02½	Mar 1899	168,500	
36	Golden Reward	S. Dakota.		1,000,000		15	Feb 1898	155,000	G
37	Grand Central	Utah.	250,000	250,000	1	12½	April 1899	356,250	G, S, C, L
38	Gwin.	California.	20,000	1,000,000	50	25	Mar 1899	54,500	G
39	Highland	S. Dakota.	100,000	10,000,000	100	20	Apr 1899	3,884,718	G
40	Holy Terror	S. Dakota.	300,000	300,000	1	01	Mar 1899	122,000	G
41	Homestake	S. Dakota.	125,000	12,500,000	100	50	Mar 1899	7,308,750	G
42	Horn Silver	Utah.	400,000	10,000,000	25	05	April 1899	5,260,000	S, L
43	Idaho	British Col.	600,000	600,000	1	05½	Jan 1899	292,000	
44	Iowa	Colorado.	1,000,000	1,000,000	1	00½	June 1898	90,000	G
45	Isabella	Colorado.	2,250,000	2,250,000	1	08	Feb 1899	405,000	G
46	Jack Pot.	Colorado.	1,000,000	1,000,000	1	02½	Mar 1899	25,000	G
47	Jersey Leasing	Colorado.	200,000	200,000	1	03½	Oct 1898	137,875	
48	Lake Superior Iron	Michigan.	84,000	2,100,000	25	1 00	Feb 1899	736,000	I
49	Le Roi	British Col.	500,000	2,600,000	5	10	Apr 1898	776,000	G
50	Lillie	Colorado.	1,000,000	1,000,000	1	05	Apr 1899	215,300	G
51	Minnesota	Minnesota.	185,000	18,500,000	100	1 50	Oct 1898	4,735,000	I
52	Modoc	Colorado.	500,000	500,000	1	02	Mar 1899	120,000	G
53	Montana Ltd	Montana.	660,000	3,300,000	5	12	Apr 1899	2,997,637	G, S
54	Montana Ore Purchasing	Montana.	40,000	1,000,000	25	1 00	Apr 1899	1,010,000	
55	Morning Star	California.	2,400	240,000	100	2 50	Apr 1899	720,000	G
56	Mt. Rosa	Colorado.	1,000,000	1,000,000	1	02	Jan 1899	80,000	G
57	Mercur	Utah.	200,000	5,000,000	25	12½	Jan 1899	1,266,000	G
58	Mammoth	Utah.	400,000	10,000,000	25	05	Dec 1898	1,500,000	G, S, C, L
59	Matosa	Colorado.	1,000,000	1,000,000	1	02½	Dec 1898	25,000	G
60	Mead	California.	2,000,000	2,000,000	1	20	Mar 1899	100,000	G
61	Montreal	Colorado.	1,000,000	1,000,000	1	01	Nov 1898	7,500	
62	Monument	Colorado.	300,000	300,000	1	01	Dec 1898	12,624	
63	Moulton	Montana.	400,000	2,000,000	5	05	Feb 1899	480,000	
64	Moon Anchor Gold	Colorado.	600,000	600,000	1	07½	Nov 1898	261,000	G
65	Mountain Copper	California.	250,000	8,250,000	25	82½	Sept 1898	93,750	C
66	New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	Apr 1899	1,036,000	S, G
67	Napa	California.	100,000	700,000	7	20	Apr 1899	990,000	G
68	New Idria Quicksilver	California.	100,000	500,000	5	20	Apr 1899	120,000	G
69	North Star	California.	200,000	2,000,000	10	25	Nov 1898	500,000	G
70	Opbir Hill	Utah.	1,000	25,000	25	20 00	Dec 1898	20,000	
71	Osceola	Michigan.	50,000	1,250,000	25	2 00	Dec 1898	2,562,500	C
72	Parrot	Montana.	280,000	2,800,000	10	30	Mar 1899	2,346,898	C
73	Pennsylvania Consolidated	California.	51,500	5,150,000	10	05	Apr 1899	81,950	
74	Pioneer	California.	100,000	1,000,000	10	12½	Mar 1899	62,500	G
75	Portland	Colorado.	8,000,000	3,000,000	1	02	Mar 1899	2,310,080	G, S
76	Plumbago	California.	300,000	300,000	1	15	Jan 1899	45,000	G
77	Quincy	Michigan.	100,000	2,500,000	25	3 50	Feb 1899	10,470,000	C
78	*Republic Consolidated	Washington	3,000,000	3,000,000	1	01	April 1899	30,000	G
79	Rambler-Cariboo	British Col.	1,000,000	1,000,000	1	01	April 1899	50,000	
80	Royal Consolidated	British Col.	2,500,000	2,500,000	1	01	Mar 1899	35,000	G
81	Sacramento	Utah.	1,000,000	6,000,000	5	00½	Apr 1899	82,000	G
82	Small Hopes Consolidated	Colorado.	250,000	5,000,000	30	10	Feb 1899	3,325,000	S
83	South Swansea	Utah.	150,000	150,000	1	05	Apr 1899	147,500	S, L
84	Standard	California.	200,000	20,000,000	100	10	Aug 1898	5,674,940	G, S
85	St. Joseph	Missouri.	30,000	3,000,000	10	1 50	Mar 1899	2,822,000	L
86	Silver King	Utah.	150,000	3,000,000	30	25	April 1899	2,000,000	S, L, G
87	Smuggler	Colorado.	1,000,000	1,000,000	1	01	Jan 1899	1,106,000	S, L, Z
88	Swansea	Utah.	100,000	500,000	5	05	April 1899	166,500	S, L
89	Tamarack	Michigan.	60,000	1,600,000	16	4 00	Dec. 1898	5,570,000	C
90	Tomboy	Colorado.	200,000	2,000,000	10	25	Dec 1898	650,000	G
91	Utah	Utah.	100,000	1,000,000	10	02	Jan 1899	179,000	G
92	Victor	Colorado.	300,000	1,000,000	5	50	Dec 1898	1,155,000	G
93	Vindicator	Colorado.	1,800,000	1,600,000	1	05	Jan 1899	180,500	G
94	War Eagle	British Col.	2,000,000	1,000,000	1	01½	Apr 1899	282,750	
95	Wolverine	Michigan.	80,000	2,500,000	25	1 50	Apr 1899	150,000	C
96	Yellow Aster	California.	100,000	1,000,000	10	10	Jan 1899	163,739	G

S. Silver; G. Gold; L. Lead; O. Copper; Q. Quicksilver;

I. Iron;

Z. Zinc.

N. B.—Companies not listed have not paid a dividend for the last twelve months.

*Paid since consolidation. \$20,000; Republic paid \$120,000 under old management.

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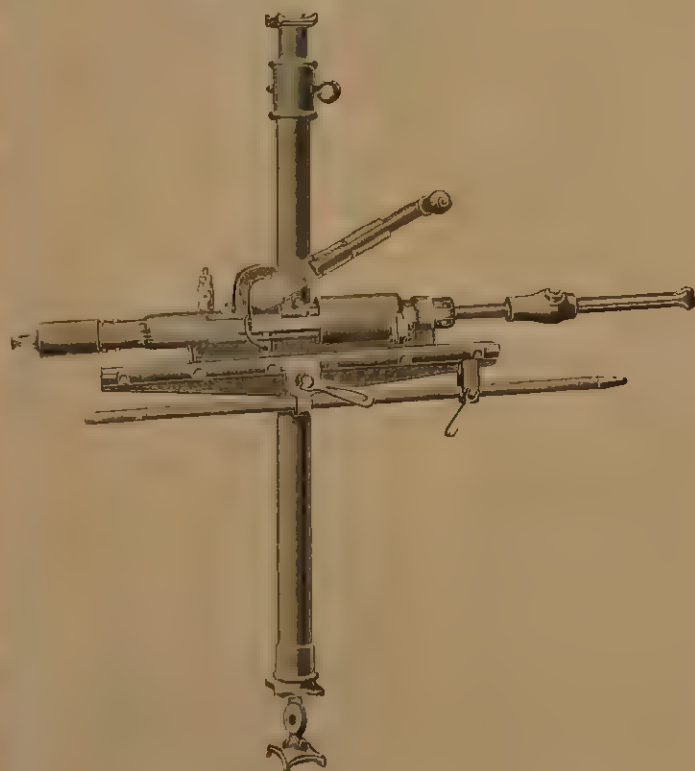
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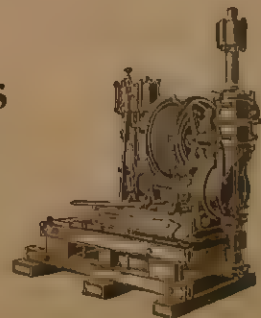
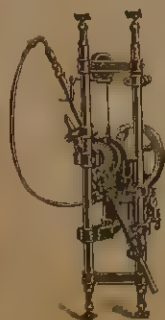
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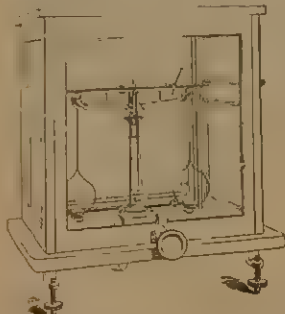
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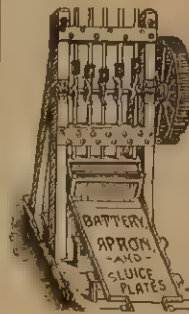
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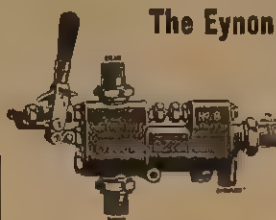
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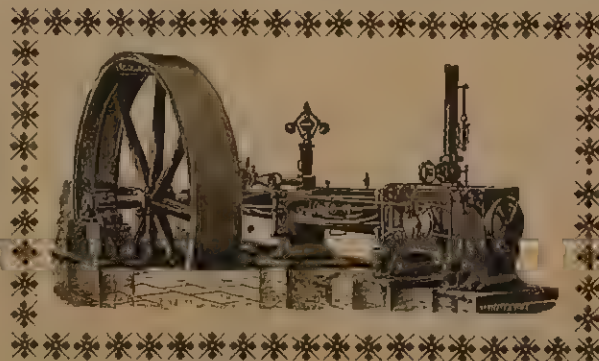
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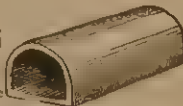
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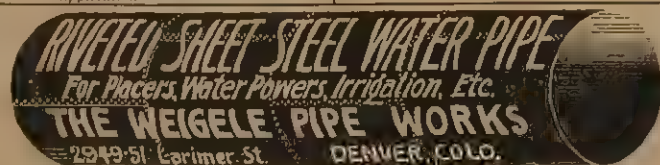
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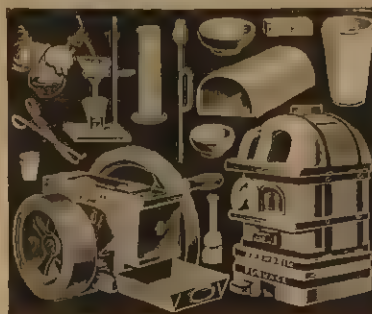
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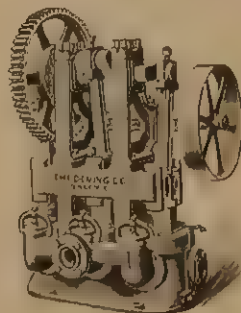
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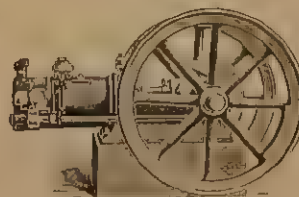
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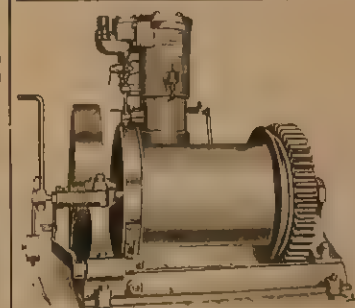
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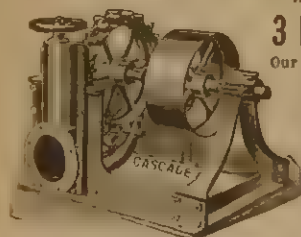


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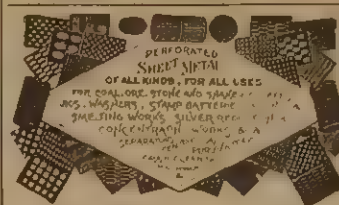
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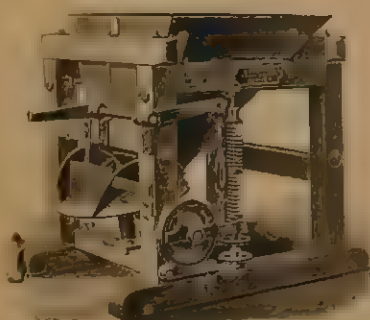
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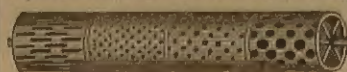
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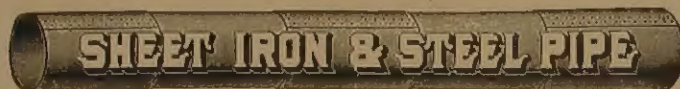
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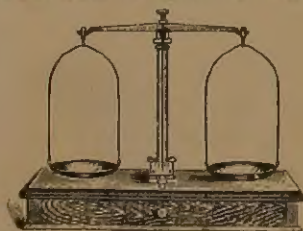
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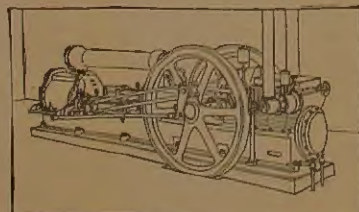
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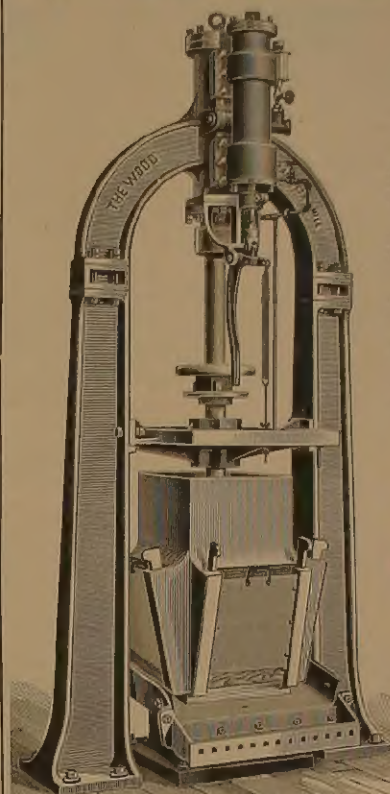
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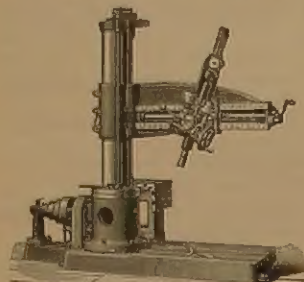
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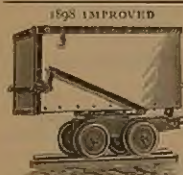
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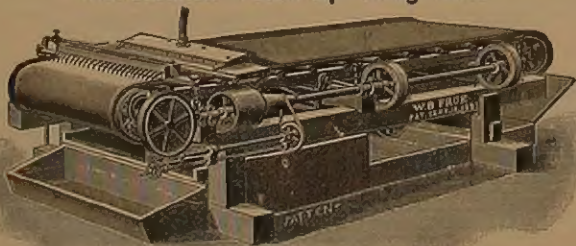
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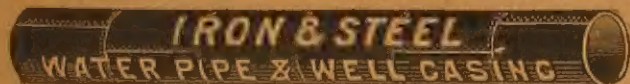
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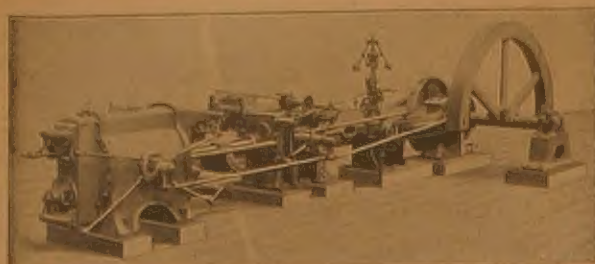
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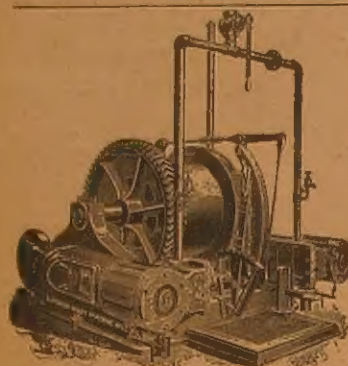
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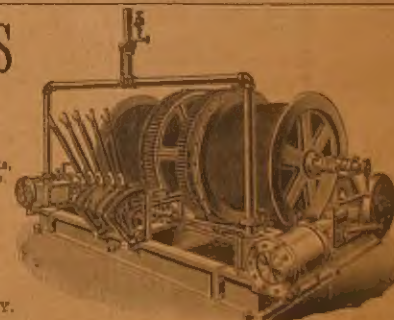
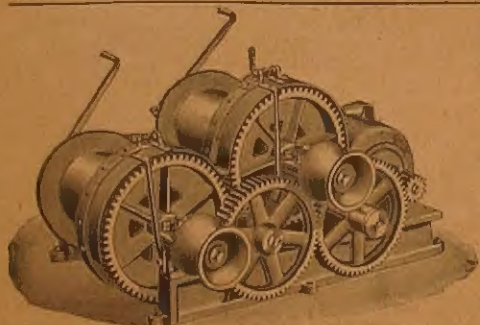
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